```
=> d his

     (FILE 'HOME' ENTERED AT 11:26:38 ON 07 JUL 2005)
               SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 11:26:44 ON 07 JUL 2005
               E EPH
L1           4 S E3()A2
L2         154 S E29,E32
L3         156 S L1,L2
               E KIENER P/AU
L4          99 S E3,E4,E7,E8
               E KINCH M/AU
L5          66 S E3,E5,E7,E10,E11
               E LANGERMAN S/AU
L6          37 S E4,E5,E11-E14
               E MEDIMMUN/PA,CS
L7         218 S MEDIMMUNE?/PA,CS
L8           1 S US20050049176/PN OR (US2004-823259# OR WO2004-US11481 OR US20
L9           1 S L3 AND L8
L10        106 S L3 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L11         59 S EPHRIN TYPE A RECEPTOR 2
L12         27 S L11 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L13        117 S L10,L12

     FILE 'REGISTRY' ENTERED AT 11:33:54 ON 07 JUL 2005
               E EPH/CN
               E EPHA2
L14         27 S E3
L15          0 S EPH A2

     FILE 'HCAPLUS' ENTERED AT 11:36:36 ON 07 JUL 2005
L16        130 S L14
L17         25 S ECK()(KINASE OR RECEPTOR KINASE OR RECEPTOR PROTEIN KINASE OR
L18          1 S EPITHELIAL CELL RECEPTOR PROTEIN TYROSINE KINASE
L19        117 S L16-L18 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L20        174 S L13,L19
L21         29 S L4-L7 AND L20
L22         29 S L21 AND (?KINASE? OR TYROSINE OR PROTEINKINASE OR PROTEIN KIN
L23         28 S L22 AND RECEPTOR
L24         29 S L22,L23
L25         29 S L9,L24
L26         14 S L4-L7 AND L3,L11,L16-L18 NOT L25
L27        193 S L3,L11,L16-L18 NOT L25,L26
L28        145 S L27 AND L10,L12,L19
L29          9 S L28 AND ANTAGON?
L30         61 S L28 AND (INHIBIT? OR BLOCK? OR PREVENT?)
L31         62 S L29,L30
               SEL DN AN 3 6 14-16 20 30 34 39 47 48 50 52 53 60
L32         15 S L31 AND E1-E45
L33         44 S L25,L32
L34         83 S L28 NOT L31,L25,L26
               SEL DN AN 4 5 8 26 27 32 34 38 41 68 83
L35         11 S L34 AND E46-E78
L36         55 S L33,L35 AND L1-L13,L16-L35
L37         55 S L36 AND (?TYROSIN? OR ?KINASE? OR RECEPTOR OR PROTEIN)
L38         10 S L37 AND ECK
L39         51 S L37 AND (EPH OR EPHRIN? OR EPH## OR EPH A#)
L40         55 S L37-L39
               SEL HIT RN
```

```
     FILE 'REGISTRY' ENTERED AT 12:19:56 ON 07 JUL 2005
L41             2 S E79-E80
L42             2 S L41 AND L14

=> fil reg
FILE 'REGISTRY' ENTERED AT 12:20:37 ON 07 JUL 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    6 JUL 2005  HIGHEST RN 853990-77-9
DICTIONARY FILE UPDATES:   6 JUL 2005  HIGHEST RN 853990-77-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,    *
* effective March 20, 2005.  A new display format, IDERL, is now     *
* available and contains the CA role and document type information.  *
*                                                                    *
**********************************************************************

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> d ide can tot l42

L42  ANSWER 1 OF 2  REGISTRY  COPYRIGHT 2005 ACS on STN
RN   389189-17-7  REGISTRY
ED   Entered STN:  04 Feb 2002
CN   DNA (human HeLa cell gene ECK protein kinase cDNA plus flanks) (9CI)  (CA
     INDEX NAME)
OTHER NAMES:
CN   1171: PN: WO03042661 TABLE: 34A claimed DNA
CN   11: PN: WO02072789 PAGE: 120 unclaimed DNA
CN   1259: PN: WO03095618 TABLE: 1 unclaimed DNA
CN   1728: PN: WO03042661 TABLE: 3A claimed DNA
CN   1: PN: WO03061564 TABLE: 1 unclaimed DNA
CN   201: PN: WO0224956 FIGURE: 11 claimed DNA
CN   219: PN: WO02059367 TABLE: 3 unclaimed DNA
CN   2257: PN: WO03042661 TABLE: 25A claimed DNA
CN   2381: PN: WO03042661 TABLE: 49A claimed DNA
CN   2455: PN: WO2004038376 TABLE: 5 unclaimed DNA
CN   256: PN: WO02072828 TABLE: 3 claimed sequence
CN   25: PN: WO03044166 TABLE: 1 unclaimed DNA
```

CN 3428: PN: WO03042661 TABLE: 17A claimed DNA
CN 34: PN: US20030233196 FIGURE: 2 unclaimed DNA
CN 4034: PN: WO03091391 TABLE: 20 unclaimed DNA
CN 4109: PN: WO2004037996 TABLE: 3 claimed DNA
CN 7: PN: WO02063037 TABLE: 1 unclaimed DNA
CN DNA (human cell line HeLa and keratinocyte cDNA)
CN DNA (human cell line HeLa and keratinocyte gene ECK cDNA)
CN **DNA (human keratinocyte gene EphA2 protein kinase cDNA plus flanks)**
CN GenBank M36395 (Secondary GenBank Accession Number)
CN GenBank M59371
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK, TOXCENTER, USPATFULL

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
20 REFERENCES IN FILE CA (1907 TO DATE)
20 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:402911

REFERENCE 2: 140:373461

REFERENCE 3: 140:37033

REFERENCE 4: 140:3792

REFERENCE 5: 139:379453

REFERENCE 6: 139:145007

REFERENCE 7: 139:18834

REFERENCE 8: 139:2019

REFERENCE 9: 139:2018

REFERENCE 10: 138:397234

L42 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2005 ACS on STN
RN **149433-91-0** REGISTRY
ED Entered STN: 20 Aug 1993
CN Kinase (phosphorylating), gene eck protein (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Eck kinase
CN Eck receptor kinase
CN ECK receptor protein-tyrosine kinase
CN **EphA2 receptor tyrosine kinase**
CN Ephrin-A2 receptor tyrosine kinase
CN Epithelial cell receptor protein tyrosine kinase
CN Gene eck protein kinase
CN Gene eck receptor protein tyrosine kinase
CN Gene eck receptor tyrosine kinase
MF Unspecified
CI MAN

SR CA
LC STN Files: BIOSIS, CA, CAPLUS, TOXCENTER, USPAT2, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
100 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
101 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 143:7711

REFERENCE 2: 142:460961

REFERENCE 3: 142:426447

REFERENCE 4: 142:254576

REFERENCE 5: 141:374716

REFERENCE 6: 141:273622

REFERENCE 7: 141:241427

REFERENCE 8: 141:150541

REFERENCE 9: 141:137529

REFERENCE 10: 141:121430

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 12:20:44 ON 07 JUL 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 7 Jul 2005 VOL 143 ISS 2
FILE LAST UPDATED: 6 Jul 2005 (20050706/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l40 all tot

L40 ANSWER 1 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:46212 HCAPLUS
DN 142:353435
ED Entered STN: 19 Jan 2005

TI Targeting **tyrosine kinase** in cancer
AU Dhawan, Deepika; **Kinch, Michael S.**; Knapp, Deborah W.
CS Veterinary Clinical Science, Lynn Hall of Veterinary Medicine, Purdue University, West Lafayette, IN, 47907-2026, USA
SO Recent Advances in Life Sciences (**2002**), 57-67. Editor(s): Bhattacharyya, Nandan; Bhattacharyya, Chandan. Publisher: Research Signpost, Trivandrum, India.
CODEN: 69GJFV; ISBN: 81-7736-230-5
DT Conference; General Review
LA English
CC 15-0 (Immunochemistry)
Section cross-reference(s): 1, 7, 14
AB A review with refs. **Receptor tyrosine kinases** (RTKs) play an important role in signal transduction. One member of the **Eph** family, **EphA2**, a **protein tyrosine kinase**, is upregulated in aggressive and metastatic cancers. We discuss here, the role of RTKs and the **Eph** family in particular, and the potential role of **EphA2** as a target for cancer therapy. Monoclonal antibodies have been raised against **EphA2**. We present some of the recent findings involving the use of these antibodies as potential anti-cancer agents.
ST review **receptor tyrosine kinase** **EphA2** monoclonal antibody antitumor cancer; metastatic cancer anticancer **EphA2** therapeutic target monoclonal antibody review
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; targeting **tyrosine kinase** in cancer)
IT Neoplasm
(metastasis; targeting **tyrosine kinase** in cancer)
IT Antibodies and Immunoglobulins
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(monoclonal, against **EphA2**; targeting **tyrosine kinase** in cancer)
IT Antitumor agents
Drug targets
Neoplasm
Signal transduction, biological
(targeting **tyrosine kinase** in cancer)
IT 340830-03-7
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(targeting **tyrosine kinase** in cancer)
RE.CNT 86 THERE ARE 86 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, R; Genes Dev 1999, V13, P295 HCAPLUS
(2) Adams, R; Genes Dev 1999, V13, P295 HCAPLUS
(3) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(4) Augustin, H; Cell Tissue Res 2003, V314, P25 HCAPLUS
(5) Berclaz, G; Ann Oncol 2003, V14, P220 MEDLINE
(6) Berclaz, G; Oncol Rep 2002, V9, P985 HCAPLUS
(7) Binns, K; Mol Cell Biol 2000, V20, P4791 HCAPLUS
(8) Bissell, M; Am J Pathol 1999, V155, P675 MEDLINE
(9) Brantley, D; Oncogene 2002, V21, P7011 HCAPLUS
(10) Bruckner, K; Curr Opin Neurobiol 1998, V8, P375 HCAPLUS
(11) Bruckner, K; Science 1997, V275, P1640 MEDLINE
(12) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(13) Cheng, N; Cytokine Growth Factor Rev 2002, V13, P75 HCAPLUS
(14) Cheng, N; Neoplasia 2003, V5, P445 HCAPLUS
(15) Clarkson, R; Mol Endocrinol 1999, V13, P619 HCAPLUS

(16) Coffman, K; Cancer Res 2003, V63, P7907 HCAPLUS
(17) Connor, R; Dev Biol 1998, V193, P21 HCAPLUS
(18) Daniel, T; Kidney Int Suppl 1996, V57, PS73 HCAPLUS
(19) Davis, S; Science 1994, V266, P816 HCAPLUS
(20) Davy, A; Embo J 2000, V19, P5396 HCAPLUS
(21) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(22) Dodelet, V; J Biol Chem 1999, V274, P31941 HCAPLUS
(23) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(24) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(25) Easty, D; Melanoma Res 2000, V10, P401 HCAPLUS
(26) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(27) Gerety, S; Mol Cell 1999, V4, P403 HCAPLUS
(28) Gu, C; Mol Cell Biol 2001, V21, P4579 HCAPLUS
(29) Hafner, C; Int J Oncol 2003, V23, P1553 HCAPLUS
(30) Henkemeyer, M; Cell 1996, V86, P35 HCAPLUS
(31) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(32) Himanen, J; Int J Biochem Cell Biol 2003, V35, P130 HCAPLUS
(33) Himanen, J; Int J Biochem Cell Biol 2003, V35, P130 HCAPLUS
(34) Himanen, J; Nature 1998, V396, P486 HCAPLUS
(35) Hock, B; Proc Natl Acad Sci U S A 1998, V95, P9779 HCAPLUS
(36) Holland, S; Nature 1996, V383, P722 HCAPLUS
(37) Huai, J; J Biol Chem 2001, V276, P6689 HCAPLUS
(38) Kalo, M; Biochemistry 1999, V38, P14396 HCAPLUS
(39) Kikawa, K; J Biol Chem 2002, V277, P39274 HCAPLUS
(40) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(41) Konopka, G; Curr Mol Med 2003, V3, P73 HCAPLUS
(42) Kullander, K; Neuron 2001, V29, P73 HCAPLUS
(43) Lin, T; J Cell Biol 1997, V136, P1385 HCAPLUS
(44) Liu, W; Cancer 2002, V94, P934 HCAPLUS
(45) Lu, M; Cancer Res 2003, V63, P3425 HCAPLUS
(46) Luo, H; J Immunol 2001, V167, P1362 HCAPLUS
(47) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(48) Maulik, G; Methods Mol Med 2003, V74, P113 HCAPLUS
(49) McBride, J; Mech Dev 1998, V77, P201 HCAPLUS
(50) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(51) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(52) Munaron, L; Int J Mol Med 2002, V10, P671 HCAPLUS
(53) Myers, C; J Cell Biol 2000, V148, P343 HCAPLUS
(54) Nakamoto, M; Microsc Res Tech 2002, V59, P58 HCAPLUS
(55) Nemoto, T; Pathobiology 1997, V65, P195 HCAPLUS
(56) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(57) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(58) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(59) Pandey, A; Science 1995, V268, P567 HCAPLUS
(60) Pawson, T; Eur J Cancer 2002, V38, PS3
(61) Pawson, T; Science 1997, V278, P2075 HCAPLUS
(62) Pratt, R; Oncogene 2002, V21, P7690 HCAPLUS
(63) Rogers, J; Mech Dev 1999, V87, P119 HCAPLUS
(64) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(65) Sawai, Y; J Hepatol 2003, V39, P991 HCAPLUS
(66) Shimoyama, M; Biochem Biophys Res Commun 2002, V298, P87 HCAPLUS
(67) Stapleton, D; Nat Struct Biol 1999, V6, P44 HCAPLUS
(68) Stephenson, S; B M C Mol Biol 2001, V2, P15 MEDLINE
(69) Sullivan, D; Br J Cancer 2003, V89, P228 HCAPLUS
(70) Takai, N; Oncol Rep 2001, V8, P567 HCAPLUS
(71) Tang, X; Clin Cancer Res 1999, V5, P1491 HCAPLUS
(72) Tang, X; Clin Cancer Res 1999, V5, P455 HCAPLUS
(73) Tang, X; Med Pediatr Oncol 2000, V35, P656 MEDLINE
(74) Tang, X; Med Pediatr Oncol 2001, V36, P80 MEDLINE
(75) Tang, X; Proc Natl Acad Sci U S A 2000, V97, P10936 HCAPLUS

(76) Tuzi, N; Br J Cancer 1994, V69, P417 HCAPLUS
(77) Vanhoutte, P; J Biol Chem 2001, V276, P5189 HCAPLUS
(78) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(79) Wang, H; Cell 1998, V93, P741 HCAPLUS
(80) Wang, Y; Biochem Biophys Res Commun 2002, V296, P214 HCAPLUS
(81) Wilkinson, D; Int Rev Cytol 2000, V196, P177 HCAPLUS
(82) Yu, J; Proc Natl Acad Sci U S A 1999, V96, P14517 HCAPLUS
(83) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(84) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(85) Zeng, G; Am J Pathol 2003, V163, P2271 HCAPLUS
(86) Zisch, A; Oncogene 2000, V19, P177 HCAPLUS

L40 ANSWER 2 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:905876 HCAPLUS
DN 141:360679
ED Entered STN: 29 Oct 2004
TI **EphA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution
IN **Kiener, Peter A.; Kinch, Michael S.; Langermann, Solomon**
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 82 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12N
CC 1-7 (Pharmacology)
Section cross-reference(s): 3, 6, 13
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004092343	A2	20041028	WO 2004-US11481	20040412 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005049176	A1	20050303	US 2004-823259	20040412 <--
PRAI US 2003-462009P	P	20030411 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004092343	ICM	C12N
US 2005049176	NCL	514/002.000; 514/044.000 <--

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of a hypoproliferative cell disorder, especially those disorders relating to the destruction, shedding, or inadequate proliferation of epithelial and/or endothelial cells, particularly interstitial cystitis (IC) and lesions associated with inflammatory bowel disease (IBD). The methods of the invention comprise the administration of an effective amount of one or more agents that are antagonists of **EphA2**. In certain embodiments, the **EphA2** antagonistic agent of the invention decreases **EphA2endogenous** ligand binding, upregulates **EphA2** gene expression and/or translation, increases

EphA2 protein stability or **protein** accumulation, decreases **EphA2** cytoplasmic tail phosphorylation, promotes **EphA2 kinase** activity (other than autophosphorylation or ligand mediated **EphA2** signaling), increases proliferation of **EphA2** expressing cells, increases survival of **EphA2** expressing cells, and/or maintains/reconstitutes epithelial and/or endothelial cell layer integrity. The invention also provides pharmaceutical compns. comprising one or more **EphA2** antagonistic agents of the invention either alone or in combination with one or more other agents useful for therapy for a hypoproliferative cell disorder. Diagnostic methods and methods for screening for therapeutically useful agents are also provided.

ST **EphA2** hypoproliferative cell disorder epithelium endothelium reconstitution

IT Antigens
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**EphA2**; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Bladder, disease
Inflammation
(cystitis, interstitial; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Cell death
Human
Immunomodulators
(**ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Antisense nucleic acids
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT **Proteins**
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin** A2; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT **Tyrosine kinase receptors**
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin type-A receptor 2**; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT **Proteins**
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin**, A1; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Cell proliferation
(epithelial; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(humanized, to **EphA2**; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

IT Urinary tract, disease
(infection, treatment of; **ephA2**, hypoproliferative cell

disorders and epithelial and endothelial reconstitution)
IT Intestine, disease
(inflammatory, treatment of; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monoclonal, to **EphA2**; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT Endothelium
Epithelium
(proliferation; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT Disease, animal
(proliferative, treatment of; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT Double stranded RNA
RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(small interfering; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(to **EphA2**; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT 778187-38-5 778187-39-6 778187-40-9 778187-41-0 778187-42-1 778187-43-2
RL: PRP (Properties)
(unclaimed nucleotide sequence; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT 778187-37-4
RL: PRP (Properties)
(unclaimed **protein** sequence; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)
IT 95088-49-6 113516-56-6 113846-65-4 113846-66-5 122024-47-9 130838-28-7 132328-28-0 135702-75-9 137235-69-9 154511-01-0 154511-02-1 154511-04-3 154511-05-4 154511-06-5 154511-07-6 154511-08-7 154511-09-8 154511-10-1 154511-11-2 154511-12-3 154561-14-5 160918-30-9 174490-42-7 185047-03-4 200405-35-2 206748-57-4 244250-73-5 244283-56-5 261944-63-2 278595-84-9 285552-09-2 337489-94-8 447456-94-2 447456-95-3 455901-21-0 455901-22-1 455901-23-2
RL: PRP (Properties)
(unclaimed sequence; **ephA2**, hypoproliferative cell disorders and epithelial and endothelial reconstitution)

L40 ANSWER 3 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:902103 HCAPLUS
DN 141:394078
ED Entered STN: 28 Oct 2004
TI Recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections
IN Reed, Jennifer L.
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 291 pp.
CODEN: PIXXD2

DT Patent
LA English
IC ICM A61K
CC 15-3 (Immunochemistry)
Section cross-reference(s): 1, 3, 9, 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004091510	A2	20041028	WO 2004-US11172	20040412 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2005002934	A1	20050106	US 2004-823253	20040412 <--
PRAI	US 2003-462259P	P	20030411 <--		
	US 2003-477797P	P	20030610		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004091510	ICM	A61K
WO 2004091510	ECLA	C07K016/24F <--
US 2005002934	NCL	424/145.100; 530/388.230; 435/007.100 <--

AB The present invention provides novel antibodies that immunospecifically bind to an IL-9 polypeptide and compns. comprising said antibodies. The antibodies are anti-human IL-9 antibody 4D4, 4D4H2-1D11, 4D4com-XF9, 4D4com-2F9, 7F3, 71A10, 22D3, 7F3com-2H2, 7F3com-3H5 and 7F3com-3D4. The present invention also provides methods and compns. preventing, treating, managing, and/or ameliorating diseases and disorders associated with aberrant expression and/or activity of IL-9 or IL-9 **receptor** or subunits thereof, autoimmune diseases, inflammatory diseases, proliferative diseases, and infections comprising administration of one or more antibodies thereof that immunospecifically bind to an IL-9 polypeptide. The invention also encompasses methods and compns. for diagnosing, monitoring, and prognosing these disorders. The present invention further relates to articles of manufacture and kits comprising antibodies that immunospecifically bind to an IL-9 polypeptide.

ST recombinant antibody human interleukin 9 autoimmune disease inflammation infection; proliferative disease asthma allergy monoclonal antibody human IL9 **receptor**

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(IgG; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Tumor necrosis factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antagonists; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Mycosis

(aspergillosis; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Infection
Pneumonia
(bacterial; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Samples
(biol.; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Mycosis
(candidiasis; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Drug delivery systems
(carriers; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(chimeric; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Lung, disease
(chronic obstructive; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Inflammation
(chronic; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Antibodies and Immunoglobulins
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(conjugates; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Physical properties
(consts., association; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Medical goods
(containers; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Mycosis
(cryptococcosis; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**ephrin type-A receptor 2**, anti-; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Lung, disease
(fibrosis; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fragments; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(heavy chain; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(humanized; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Diagnosis
(immunodiagnosis; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Respiratory tract, disease
(infection; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Interleukin **receptors**
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(interleukin 9; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(light chain; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Containers
(medical; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Mast cell
(modulator; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monoclonal; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases,

proliferative diseases and infections)
IT Drug delivery systems
(nasal, intra-; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Drug delivery systems
(oral; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Drug delivery systems
(parenterals; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Packaging materials
(pharmaceutical; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Disease, animal
(proliferative; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Fibrosis
(pulmonary; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)
IT Affinity
Allergy
Angiogenesis inhibitors
Animal cell
Animal tissue
Anti-inflammatory agents
Antibacterial agents
Antitumor agents
Antiviral agents
Arthritis
Asthma
Autoimmune disease
Combination chemotherapy
DNA sequences
Dissociation constant
Drug delivery systems
Drugs
Fungicides
Human
Human metapneumovirus
Human parainfluenza virus
Immunomodulators
Immunotherapy
Infection
Inflammation
Labels
Medical goods
Molecular cloning
Multiple sclerosis
Mycosis
Neoplasm
Prognosis
Protein sequences
Respiratory syncytial virus
Rheumatoid arthritis

Test kits
Tuberculosis
(recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Interleukin 9
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT Infection
(viral; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 784245-11-0P 784374-05-6P 784374-06-7P 784374-07-8P 784374-08-9P 784374-09-0P 784374-10-3P 784374-11-4P 784374-12-5P 784374-13-6P 784374-14-7P 784374-15-8P 784374-16-9P 784374-17-0P 784374-18-1P 784374-19-2P 784374-20-5P 784374-21-6P 784374-25-0P, Interleukin 9 (human) 784374-26-1P 784374-27-2P 784374-31-8P 784374-32-9P 784374-33-0P, Interleukin 9 **receptor** (human)
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 784374-22-7P 784374-23-8P 784374-24-9P 784374-28-3P, DNA (human interleukin 9 **receptor** cDNA) 784374-29-4P 784374-30-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 208518-20-1 480929-81-5, GenBank AAC17735 784200-47-1 784200-48-2 784200-49-3 784200-50-6 784200-51-7 784200-52-8 784200-53-9 784200-54-0 784200-55-1 784200-56-2 784200-59-5 784200-60-8 784200-61-9
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 188039-54-5, Palivizumab 288392-69-8, MEDI-507 324740-00-3, Vitaxin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 246223-20-1 784374-42-1 784374-43-2 784374-44-3 784374-45-4 784374-46-5 784374-47-6
RL: PRP (Properties)
(unclaimed nucleotide sequence; recombinant anti-IL-9 antibodies for

diagnosis, prognosis and treatment of autoimmune diseases; inflammatory diseases, proliferative diseases and infections)

IT 784374-41-0
RL: PRP (Properties)
(unclaimed **protein** sequence; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

IT 145060-92-0 145060-93-1 145061-00-3 158512-03-9 246223-11-0
728944-79-4 784200-57-3 784200-58-4
RL: PRP (Properties)
(unclaimed sequence; recombinant anti-IL-9 antibodies for diagnosis, prognosis and treatment of autoimmune diseases, inflammatory diseases, proliferative diseases and infections)

L40 ANSWER 4 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:902071 HCAPLUS
DN 141:374716
ED Entered STN: 28 Oct 2004
TI Therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders
IN **Kiener, Peter A.**; **Kinch, Michael S.**; **Langermann, Solomon**; Reed, Jennifer L.
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 128 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61B
CC 1-7 (Pharmacology)
Section cross-reference(s): 3, 6, 13

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004091375	A2	20041028	WO 2004-US11482	20040412 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005059592	A1	20050317	US 2004-823254	20040412 <--
PRAI US 2003-462024P	P	20030411 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004091375	ICM	A61B
US 2005059592	NCL	514/012.000; 424/144.100 <--

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of a non-neoplastic hyperproliferative cell or excessive cell accumulation disorders, particularly those involving hyperproliferation of epithelial or endothelial cells. In one embodiment, the methods of the invention comprise the administration of an effective amount of one or more **EphA2** agonistic agents that bind to **EphA2** and increase

EphA2 cytoplasmic tail phosphorylation and/or increase **EphA2** autophosphorylation. in cells which **EphA2** has been agonized. In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more **EphA2** agonistic agents that bind to **EphA2** and reduce **EphA2** activity (other than autophosphorylation). In another embodiment, the methods of the invention comprise administration of an effective amount of one or more **EphA2** agonistic agents that bind to **EphA2** and decrease a pathol.-causing cell phenotype (e.g., a pathol.-causing epithelial cell phenotype or a pathol.-causing endothelial cell phenotype). In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more **EphA2** agonistic agents that are **EphA2** antibodies that bind to **EphA2** with a very low Koff rate. In prefer-red embodiments, agents of the invention are monoclonal antibodies. The invention also provides pharmaceutical compns. comprising one or more **EphA2** agonistic agents of the invention either alone or in combination with one or more other agents useful in therapy for non-neoplastic hyperproliferative cell or excessive cell accumulation disorders.

ST **EphA2** hypoproliferative disorder epithelium endothelium human **tyrosine kinase receptor**

IT Antigens
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**EphA2**; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT Antiarteriosclerotics
(antiatherosclerotics; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT Lung, disease
(chronic obstructive, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT **Proteins**
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin** A2; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT **Tyrosine kinase receptors**
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin type-A receptor 2**; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT **Proteins**
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**ephrin**, A1; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

IT Cell proliferation
(epithelial; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Disease, animal
(fibroproliferative, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Kidney, disease
Liver, disease
Lung, disease
(fibrosis, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Fibrosis
(hepatic, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(humanized, to **EphA2**; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Blood vessel, disease
(hyperproliferative, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Bronchi, disease
(hyperresponsiveness, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Inflammation
Lung, disease
(interstitial pneumonitis, usual, desquamative, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Eye, disease
(macula, degeneration, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Diagnosis
(mol.; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)
IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(monoclonal, to **EphA2**; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Endothelium
Epithelium
(proliferation; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Disease, animal
(proliferative, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Fibrosis
(pulmonary, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Fibrosis
(renal, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Artery, disease
(restenosis, treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Double stranded RNA
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(small interfering; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Antiasthmatics
Antiviral agents
Cell death
Cell migration
Extracellular matrix
Gene therapy
Human
Immunomodulators
(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Fibronectins
Mucins
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Antisense nucleic acids
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Ribozymes
RL: DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(to **EphA2**; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT Asbestosis
Asthma
Atherosclerosis
Behcet's syndrome
Fibrosis
Psoriasis
Rous sarcoma virus
Seborrhea
(treatment of; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT 141907-41-7P, Matrix metalloproteinase
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT **149433-91-0P, EphA2 receptor tyrosine kinase**
RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT 780827-75-0 780827-76-1 780827-77-2 780827-78-3 780827-79-4 780827-80-7
RL: PRP (Properties)
(unclaimed nucleotide sequence; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT 780827-74-9 780827-81-8 780827-82-9 780827-83-0 780827-84-1
RL: PRP (Properties)
(unclaimed **protein** sequence; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2 (EphA2)** for treating hypoproliferative cell disorders)

IT 95088-49-6 113516-56-6 113846-65-4 113846-66-5 122024-47-9 130838-28-7 132328-28-0 135702-75-9 137235-69-9 154511-01-0

154511-02-1 154511-04-3 154511-05-4 154511-06-5 154511-07-6
154511-08-7 154511-09-8 154511-10-1 154511-11-2 154511-12-3
154561-14-5 160918-30-9 174490-42-7 185047-03-4 200405-35-2
206748-57-4 244250-73-5 244283-56-5 261944-63-2 278595-84-9
285552-09-2 337489-94-8 447456-94-2 447456-95-3 455901-21-0
455901-22-1 455901-23-2
RL: PRP (Properties)
(unclaimed sequence; therapeutic use of **tyrosine kinase receptor ephrin type-A receptor 2** (**EphA2**) for treating hypoproliferative cell disorders)

L40 ANSWER 5 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:681585** HCAPLUS
DN **141:167766**
ED Entered STN: 20 Aug 2004
TI **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis
IN Lackmann, Martin; Wimmer-Kleikamp, Sabine; Scott, Andrew; Vearing, Christopher; Boyd, Andrew
PA Ludwig Institute for Cancer Research, Australia; Monash University; The Council of the Queensland Institute of Medical Research; The University of Queensland
SO PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K038-00
ICS A61K038-17; A61K038-48; A61K038-45; A61K039-395
CC 1-6 (Pharmacology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004069264	A1	20040819	WO 2004-AU142	20040209 <--

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI AU 2003-900541 A 20030207 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004069264	ICM	A61K038-00
	ICS	A61K038-17; A61K038-48; A61K038-45; A61K039-395
WO 2004069264	ECLA	A61K038/17C; A61K038/19 <--

AB Methods and compns. for modulating **ephrin/Eph receptor**-mediated cell adhesion and/or cell repulsion are provided, particularly in relation to **preventing**, **inhibiting** or delaying tumor cell metastasis through modulation of **Eph receptor-ephrin** binding interactions and subsequent **Eph receptor** signaling. Particular agents useful according to the invention are agents which interfere with a

ephrin-Eph receptor binding such as soluble **ephrins** and **Eph receptors** and antibodies directed to **ephrins** and **Eph receptors**, **ephrin**-cytotoxic drug conjugates which kill tumor cells, metalloprotease **inhibitors** and **inhibitors** of **protein tyrosine** phosphatase activity.

ST **Eph ephrin** cell adhesion tumor metastasis **tyrosine** phosphatase metalloprotease

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**Eph receptor**; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT Adhesion, biological
Antitumor agents
Human
Leukemia
Melanoma
Neoplasm
Signal transduction, biological
(**Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT Leukemia
(acute pre-B-cell; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** A5; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** B2; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor** 2; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 3; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 4; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 7; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 8; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**; **Eph/ephrin** mediated modulation

of cell adhesion and tumor cell metastasis)
IT Melanoma
Neoplasm
(metastasis; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)
IT Angiogenesis
(neovascularization; **Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)
IT 37205-61-1, Proteinase **inhibitor** 79747-53-8, **Tyrosine** phosphatase 81669-70-7, Metalloprotease 145266-99-5, Metalloprotease **inhibitor** 149433-92-1, **Eph kinase** 193099-09-1, ADAM-10 301156-53-6, **Tyrosine** phosphatase SHP2 352548-19-7, LMW-PTP
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)
IT 113440-58-7, Calicheamicin
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**Eph/ephrin** mediated modulation of cell adhesion and tumor cell metastasis)

L40 ANSWER 6 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:452978** HCAPLUS
DN **141:2317**
ED Entered STN: 04 Jun 2004
TI Algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing
IN Khvorova, Anastasia; Reynolds, Angela; Leake, Devin; Marshall, William; Scaringe, Stephen
PA Dharmacon, Inc., USA
SO PCT Int. Appl., 199 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 1
FAN.CNT 27

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004045543	A2	20040603	WO 2003-US36787	20031114 <--
WO 2004045543	A3	20050421		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543	A2	20040603	WO 2003-XA36787	20031114 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XB36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XC36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XD36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XE36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XF36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XG36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XH36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XI36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XJ36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XK36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XL36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XM36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XN36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XO36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XP36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG
WO 2004045543 A2 20040603 WO 2003-XQ36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG
WO 2004045543 A2 20040603 WO 2003-XR36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG
WO 2004045543 A2 20040603 WO 2003-XS36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG
WO 2004045543 A2 20040603 WO 2003-XT36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG
WO 2004045543 A2 20040603 WO 2003-XU36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XV36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XW36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XX36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XY36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

WO 2004045543 A2 20040603 WO 2003-XZ36787 20031114 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,

KZ, MD, RU, TJ
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-426137P P 20021114 <--
US 2003-502050P P 20030910
WO 2003-US36787 A 20031114

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004045543	ICM	A61K

AB Efficient sequence specific gene silencing is possible through the use of siRNA-mediated RNA interference (RNAi) technol. By selecting particular siRNAs by rational design, one can maximize the generation of an effective gene silencing reagent, as well as methods for silencing genes. Nine algorithms are provided for selecting siRNA for a target gene by measuring the functionality of sequences of 19-25 nucleotides in length that are substantially complementary to a stretch of nucleotides of the target sequence, wherein said functionality is dependent upon non-target specific criteria. In one method, rationally designed siRNA can be identified by maximizing one or more of the following criteria: (1) a low GC content, preferably between about 30-52%; (2) at least 2, preferably at least 3 A or U bases at positions 15-19 of the siRNA on the sense strand; (3) an A base at position 3, 14, and 19 ; (4) an U base at position 10; (5) a base other than C at position 19; (6) a base other than G at position 13; (7) a melting temperature (Tm), which refers to the character of the internal repeat that results in inter- or intramol. structures for one strand of the duplex, that is preferably not stable at >50°, more preferably not stable at >37°, even more preferably not stable at >30°, and most preferably not stable at >20°; (8) a base other than U at position 5; and (9) a base other than A at position 11. Sequence features in siRNA that promote functionality were identified using an siRNA panel consisting of 270 siRNAs targeting three genes: human cyclophilin, firefly luciferase, and human diazepam-binding **inhibitor.** Bcl-2 siRNAs having the top ten "SMARTscores®" according to the selection algorithms, were selected and tested in a functional assay to determine silencing efficiency. Genome-wide application of the algorithm was accomplished by processing the entire online NCBI RefSeq database through Formula VIII; the top 80-100 scores for siRNAs are obtained and BLAST'ed to entire that the selected sequences are specific in targeting the gene of choice. [This abstract record is one of 281 records for this document necessitated by the large number of index entries required to fully index the document and publication system constraints.].

ST siRNA selection algorithm gene silencing

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Bcl-2; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(DBI (diazepam binding **inhibitor**); algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Algorithm
Drug design
Optimization
(algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Cyclophilins

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Gene targeting
(gene knock-out; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Post-transcriptional processing
(gene silencing; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Genome
(genome-wide application to human genes; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Human
(genome-wide application; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Post-transcriptional processing
(interference; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT RNA sequences
(of siRNAs rationally designed for human genes; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT Double stranded RNA
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(small interfering; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 61970-00-1, Firefly luciferase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-51-8P 694204-52-9P 694215-84-4P 694221-17-5P 694221-18-6P
694221-19-7P 694221-20-0P 694221-21-1P 694221-22-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of -specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-90-9P 694214-91-0P 694214-92-1P 694214-93-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ABCB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-94-3P 694214-95-4P 694214-96-5P 694214-97-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ABCC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-98-7P 694214-99-8P 694215-00-4P 694215-01-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ABCG2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-25-9P 694205-26-0P 694205-27-1P 694205-28-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of ABL1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-29-3P 694205-30-6P 694205-31-7P 694205-32-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ABL2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-33-9P 694205-34-0P 694205-35-1P 694205-36-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ACK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-69-5P 694215-70-8P 694215-71-9P 694215-72-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ADAM2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-67-5P 694221-68-6P 694221-69-7P 694221-70-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ADAM33-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-79-9P 694221-80-2P 694221-81-3P 694221-82-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ADPRT-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-81-6P 694222-82-7P 694222-83-8P 694222-84-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AGTR2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-20-0P 694219-21-1P 694219-22-2P 694219-23-3P 694219-24-4P 694219-25-5P 694219-26-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AIF1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-01-8P 694204-02-9P 694204-03-0P 694204-04-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AKT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-05-2P 694204-06-3P 694204-07-4P 694204-08-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AKT2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-09-6P 694204-10-9P 694204-11-0P 694204-12-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AKT3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-29-2P 694222-30-5P 694222-31-6P 694222-32-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ALAS-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-37-3P 694205-38-4P 694205-39-5P 694205-40-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ALK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-90-9P 694202-91-0P 694202-92-1P 694202-93-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AP2B1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-44-1P 694222-45-2P 694222-46-3P 694222-47-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of APBB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-52-1P 694208-53-2P 694208-54-3P 694208-55-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of APC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-03-2P 694222-04-3P 694222-05-4P 694222-06-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of APOA5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-94-7P 694212-95-8P 694212-96-9P 694212-97-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-70-5P 694202-71-6P 694202-72-7P 694202-73-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ARF6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-13-4P 694222-14-5P 694222-15-6P 694222-16-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ARH-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-93-1P 694217-94-2P 694217-95-3P 694217-96-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ARHA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-67-8P 694222-68-9P 694222-69-0P 694222-70-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ARX-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-60-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATE1-1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-61-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATE1-2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-62-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATE1-3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-63-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATE1-4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-56-5P 694208-57-6P 694208-58-7P 694208-59-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATM-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-60-1P 694208-61-2P 694208-62-3P 694208-63-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ATR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-41-9P 694205-42-0P 694205-43-1P 694205-44-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of AXL-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-48-5P 694222-49-6P 694222-50-9P 694222-51-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BACE1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-87-0P 694216-88-1P 694216-89-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BAD-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-27-7P 694219-28-8P 694219-29-9P 694219-30-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BBC3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-31-3P 694219-32-4P 694219-33-5P 694219-34-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2L1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-35-7P 694219-36-8P 694219-37-9P 694219-38-0P 694219-39-1P
694219-40-4P 694219-41-5P 694219-42-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2L11-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-50-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-51-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-52-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-53-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-54-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-55-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BCL2_6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-43-7P 694219-44-8P 694219-45-9P 694219-46-0P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BID-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-47-1P 694219-48-2P 694219-49-3P 694219-50-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BIRC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-51-7P 694219-52-8P 694219-53-9P 694219-54-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BIRC3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-55-1P 694219-56-2P 694219-57-3P 694219-58-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BIRC4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-59-5P 694219-60-8P 694219-61-9P 694219-62-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BIRC5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-45-3P 694205-46-4P 694205-47-5P 694205-48-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BLK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-49-7P 694205-50-0P 694205-51-1P 694205-52-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BMX-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-86-5P 694218-87-6P 694218-88-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BRAF-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-13-5P 694217-14-6P 694217-15-7P 694217-16-8P 694217-17-9P 694217-18-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BRCA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-64-5P 694208-65-6P 694208-66-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BTAK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-53-3P 694205-54-4P 694205-55-5P 694205-56-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BTK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-44-5P 694218-45-6P 694218-46-7P 694218-47-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of BTRC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-68-4P 694203-69-5P 694203-70-8P 694203-71-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of Bcl10-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-32-9P 694202-33-0P 694202-34-1P 694202-35-2P 694202-36-3P
694202-37-4P 694202-38-5P 694202-39-6P 694202-40-9P 694202-41-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of Bcl2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-57-7P 694205-58-8P 694205-59-9P 694205-60-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of C20orf64-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-89-9P 694215-90-2P 694215-91-3P 694215-92-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CALCR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-54-5P 694202-55-6P 694202-56-7P 694202-57-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CALM-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-63-1P 694219-64-2P 694219-65-3P 694219-66-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CARD4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-67-5P 694219-68-6P 694219-69-7P 694219-70-0P 694219-71-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP10-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-72-2P 694219-73-3P 694219-74-4P 694219-75-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)

IT 694216-17-6P 694216-18-7P 694216-19-8P 694216-20-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-21-2P 694216-22-3P 694216-23-4P 694216-24-5P 694216-25-6P 694216-26-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-27-8P 694216-28-9P 694216-29-0P 694216-30-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-31-4P 694216-32-5P 694216-33-6P 694216-34-7P 694216-35-8P 694216-36-9P 694216-37-0P 694216-38-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP8-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-39-2P 694216-40-5P 694216-41-6P 694216-42-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CASP9-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-13-2P 694204-14-3P 694204-15-4P 694204-16-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CBL-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-17-6P 694204-18-7P 694204-19-8P 694204-20-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CBLB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-68-9P 694208-69-0P 694208-70-3P 694208-71-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-72-5P 694208-73-6P 694208-74-7P 694208-75-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNA2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-76-9P 694208-77-0P 694208-78-1P 694208-79-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of CCNB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-80-5P 694208-81-6P 694208-82-7P 694208-83-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-84-9P 694208-85-0P 694208-86-1P 694208-87-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNB3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-88-3P 694208-89-4P 694208-90-7P 694208-91-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-92-9P 694208-93-0P 694208-94-1P 694208-95-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCND1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-96-3P 694208-97-4P 694208-98-5P 694208-99-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCND2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-00-2P 694209-01-3P 694209-02-4P 694209-03-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCND3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-04-6P 694209-05-7P 694209-06-8P 694209-07-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNE1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-08-0P 694209-09-1P 694209-10-4P 694209-11-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNE2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-12-6P 694209-13-7P 694209-14-8P 694209-15-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNF-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-16-0P 694209-17-1P 694209-18-2P 694209-19-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of CCNG1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-20-6P 694209-21-7P 694209-22-8P 694209-23-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNG2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-24-0P 694209-25-1P 694209-26-2P 694209-27-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNH-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-28-4P 694209-29-5P 694209-30-8P 694209-31-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNI-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-32-0P 694209-33-1P 694209-34-2P 694209-35-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-36-4P 694209-37-5P 694209-38-6P 694209-39-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNT2A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-40-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CCNT2B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-83-6P 694216-84-7P 694216-85-8P 694216-86-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CD2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-41-1P 694209-42-2P 694209-43-3P 694209-44-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC16-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-45-5P 694209-46-6P 694209-47-7P 694209-48-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-49-9P 694209-50-2P 694209-51-3P 694209-52-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of CDC20-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-53-5P 694209-54-6P 694209-55-7P 694209-56-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC25A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-57-9P 694209-58-0P 694209-59-1P 694209-60-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC25B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-61-5P 694209-62-6P 694209-63-7P 694209-64-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC25C-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-65-9P 694209-66-0P 694209-67-1P 694209-68-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC27-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-69-3P 694209-70-6P 694209-71-7P 694209-72-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC34-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-73-9P 694209-74-0P 694209-75-1P 694209-76-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC37-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-97-5P 694217-98-6P 694217-99-7P 694218-00-3P 694218-01-4P 694218-02-5P 694218-03-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC42-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-77-3P 694209-78-4P 694209-79-5P 694209-80-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC45L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-81-9P 694209-82-0P 694209-83-1P 694209-84-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-85-3P 694209-86-4P 694209-87-5P 694209-88-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDC7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-89-7P 694209-90-0P 694209-91-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK10-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-92-2P 694209-93-3P 694209-94-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-95-5P 694209-96-6P 694209-97-7P 694209-98-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694209-99-9P 694210-00-9P 694210-01-0P 694210-02-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-03-2P 694210-04-3P 694210-05-4P 694210-06-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-07-6P 694210-08-7P 694210-09-8P 694210-10-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-12-3P 694210-13-4P 694210-14-5P 694210-15-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-16-7P 694210-17-8P 694210-18-9P 694210-19-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK8-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-20-3P 694210-21-4P 694210-22-5P 694210-23-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDK9-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-19-1P 694217-20-4P 694217-21-5P 694217-22-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN1A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-23-7P 694217-24-8P 694217-25-9P 694217-26-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN1B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-24-7P 694210-25-8P 694210-26-9P 694210-27-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN1C-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-28-1P 694210-29-2P 694210-30-5P 694210-31-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN2B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-32-7P 694210-33-8P 694210-34-9P 694210-35-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN2C-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-36-1P 694210-37-2P 694210-38-3P 694210-39-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDKN2D-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-40-7P 694210-41-8P 694210-42-9P 694210-43-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CDT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-44-1P 694210-45-2P 694210-46-3P 694210-47-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-48-5P 694210-49-6P 694210-50-9P 694210-51-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-52-1P 694210-53-2P 694210-54-3P 694210-55-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-56-5P 694210-57-6P 694210-58-7P 694210-59-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPE-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-60-1P 694210-61-2P 694210-62-3P 694210-63-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPF-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-64-5P 694210-65-6P 694210-66-7P 694210-67-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CENPH-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-76-6P 694219-77-7P 694219-78-8P 694219-79-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CFLAR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-68-9P 694210-69-0P 694210-70-3P 694210-71-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CHEK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-72-5P 694210-73-6P 694210-74-7P 694210-75-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CHEK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-14-0P 694215-15-1P 694215-16-2P 694215-17-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLCA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-80-2P 694219-81-3P 694219-82-4P 694219-83-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-85-5P 694215-86-6P 694215-87-7P 694215-88-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLN3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-84-6P 694219-85-7P 694219-86-8P 694219-87-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLSPN-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-46-5P 694202-47-6P 694202-48-7P 694202-49-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLTA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-50-1P 694202-51-2P 694202-52-3P 694202-53-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLTB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-42-1P 694202-43-2P 694202-44-3P 694202-45-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CLTC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-81-1P 694215-82-2P 694215-83-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CMKLR1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-76-9P 694210-77-0P 694210-78-1P 694210-79-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CNK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-75-5P 694221-76-6P 694221-77-7P 694221-78-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of COX2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-40-1P 694218-41-2P 694218-42-3P 694218-43-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CREBBP-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-80-5P 694210-81-6P 694210-82-7P 694210-83-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CRI1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-61-3P 694205-62-4P 694205-63-5P 694205-64-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CSF1R-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-65-7P 694205-66-8P 694205-67-9P 694205-68-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CSK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-88-0P 694219-89-1P 694219-90-4P 694219-91-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CSNK2A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-67-6P 694216-68-7P 694216-69-8P 694216-70-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CTNNA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-71-2P 694216-72-3P 694216-73-4P 694216-74-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CTNNA2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-92-6P 694219-93-7P 694219-94-8P 694219-95-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CTNNB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-96-0P 694219-97-1P 694219-98-2P 694219-99-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CXCR4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-00-3P 694220-01-4P 694220-02-5P 694220-03-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CXCR6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-50-6P 694221-51-7P 694221-52-8P 694221-53-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CYP1A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-17-8P 694222-18-9P 694222-19-0P 694222-20-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of CYP7A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-04-7P 694220-05-8P 694220-06-9P 694220-07-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DAXX-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-30-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DBI1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-31-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DBI2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-32-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DBI3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-33-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DBI4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-79-0P 694216-80-3P 694216-81-4P 694216-82-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DCTN2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-69-1P 694205-70-4P 694205-71-5P 694205-72-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DDR1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-73-7P 694205-74-8P 694205-75-9P 694205-76-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DDR2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-77-1P 694205-78-2P 694205-79-3P 694205-80-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DKFZp761P1010-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-66-9P 694202-67-0P 694202-68-1P 694202-69-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DNM2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-43-8P 694216-44-9P 694216-45-0P 694216-46-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DVL1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-47-2P 694216-48-3P 694216-49-4P 694216-50-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of DVL2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-84-9P 694210-85-0P 694210-86-1P 694210-87-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-88-3P 694210-89-4P 694210-90-7P 694210-91-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-92-9P 694210-93-0P 694210-94-1P 694210-95-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694210-96-3P 694210-97-4P 694210-98-5P 694210-99-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-00-2P 694211-01-3P 694211-02-4P 694211-03-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-04-6P 694211-05-7P 694211-06-8P 694211-07-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of E2F56specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-97-9P 694215-98-0P 694215-99-1P 694216-00-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EDG4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-01-8P 694216-02-9P 694216-03-0P 694216-04-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EDG5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-05-2P 694216-06-3P 694216-07-4P 694216-08-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EDG7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-86-3P 694202-87-4P 694202-88-5P 694202-89-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EEA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-64-0P 694203-65-1P 694203-66-2P 694203-67-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EGFR-1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-21-2P 694204-22-3P 694204-23-4P 694204-24-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EIF4EBP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-89-8P 694218-90-1P 694218-91-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ELK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-81-7P 694205-82-8P 694205-83-9P 694205-84-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA1**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-85-1P 694205-86-2P 694205-87-3P 694205-88-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA2**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-89-5P 694205-90-8P 694205-91-9P 694205-92-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA3**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-93-1P 694205-94-2P 694205-95-3P 694205-96-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA4**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-97-5P 694205-98-6P 694205-99-7P 694206-00-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA7**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-01-4P 694206-02-5P 694206-03-6P 694206-04-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHA8**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-05-8P 694206-06-9P 694206-07-0P 694206-08-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHB1**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-09-2P 694206-10-5P 694206-11-6P 694206-12-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHB2**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-13-8P 694206-14-9P 694206-15-0P 694206-16-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHB3**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-17-2P 694206-18-3P 694206-19-4P 694206-20-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHB4**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-21-8P 694206-22-9P 694206-23-0P 694206-24-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of **EPHB6**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-58-9P 694202-59-0P 694202-60-3P 694202-61-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EPS15-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-62-5P 694202-63-6P 694202-64-7P 694202-65-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of EPS15R-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-25-2P 694206-26-3P 694206-27-4P 694206-28-5P 694217-05-5P 694217-06-6P 694217-07-7P 694217-08-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ERBB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-29-6P 694206-30-9P 694206-31-0P 694206-32-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ERBB3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-33-2P 694206-34-3P 694206-35-4P 694206-36-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ERBB4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-98-1P 694212-99-2P 694213-00-8P 694213-01-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ESR1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-02-0P 694213-03-1P 694213-04-2P 694213-05-3P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ESR2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-06-4P 694213-07-5P 694213-08-6P 694213-09-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ESRRA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-10-0P 694213-11-1P 694213-12-2P 694213-13-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ESRRB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-14-4P 694213-15-5P 694213-16-6P 694213-17-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ESRRG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-72-6P 694217-73-7P 694217-74-8P 694217-75-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FADD-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-21-4P 694222-22-5P 694222-23-6P 694222-24-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FANCA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-25-8P 694222-26-9P 694222-27-0P 694222-28-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FANCG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-37-6P 694206-38-7P 694206-39-8P 694206-40-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FER-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-41-2P 694206-42-3P 694206-43-4P 694206-44-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FES-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-45-6P 694206-46-7P 694206-47-8P 694206-48-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FGFR1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-49-0P 694206-50-3P 694206-51-4P 694206-52-5P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FGFR2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-53-6P 694206-54-7P 694206-55-8P 694206-56-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FGFR3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-57-0P 694206-58-1P 694206-59-2P 694206-60-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FGFR4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-61-6P 694206-62-7P 694206-63-8P 694206-64-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FGR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-39-5P 694217-40-8P 694217-41-9P 694217-42-0P 694217-43-1P 694217-44-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FKBP1A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-65-0P 694206-66-1P 694206-67-2P 694206-68-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FLT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-69-4P 694206-70-7P 694206-71-8P 694206-72-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FLT3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-73-0P 694206-74-1P 694206-75-2P 694206-76-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FLT4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-08-0P 694211-09-1P 694211-10-4P 694211-11-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FOS-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-25-6P 694204-26-7P 694204-27-8P 694204-28-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FOXO1A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-29-0P 694204-30-3P 694204-31-4P 694204-32-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FOXO3A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-33-6P 694204-34-7P 694204-35-8P 694204-36-9P 694217-35-1P 694217-36-2P 694217-37-3P 694217-38-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FRAP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-77-4P 694206-78-5P 694206-79-6P 694206-80-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FRK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-81-0P 694206-82-1P 694206-83-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of FYN-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-98-7P 694202-99-8P 694203-00-4P 694203-01-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GAPDH-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-08-1P 694220-09-2P 694220-10-5P 694220-11-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GAS41-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-91-5P 694221-92-6P 694221-93-7P 694221-94-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GATA3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-61-7P 694215-62-8P 694215-63-9P 694215-64-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GLRA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-93-5P 694203-94-6P 694203-95-7P 694203-96-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GLUT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-97-9P 694203-98-0P 694203-99-1P 694204-00-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GLUT12-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)

IT 694218-60-5P 694218-61-6P 694218-62-7P 694218-63-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GRB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-37-0P 694204-38-1P 694204-39-2P 694204-40-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GSK3A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-41-6P 694204-42-7P 694204-43-8P 694204-44-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GSK3B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-12-7P 694220-13-8P 694220-14-9P 694220-15-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GTSE1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-77-5P 694215-78-6P 694215-79-7P 694215-80-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of GZMA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-95-9P 694221-96-0P 694221-97-1P 694221-98-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of Gab2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-84-3P 694206-85-4P 694206-86-5P 694206-87-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HCK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-32-1P 694218-33-2P 694218-34-3P 694218-35-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HDAC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-36-5P 694218-37-6P 694218-38-7P 694218-39-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HDAC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-16-1P 694220-17-2P 694220-18-3P 694220-19-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HDAC3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)

IT 694220-20-7P 694220-21-8P 694220-22-9P 694220-23-0P 694220-24-1P
694220-25-2P 694220-26-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HDAC5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-83-5P 694221-84-6P 694221-85-7P 694221-86-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HDC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-27-4P 694220-28-5P 694220-29-6P 694220-30-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HEC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-76-4P 694203-77-5P 694203-78-6P 694203-79-7P 694203-80-0P
694203-81-1P 694203-82-2P 694203-83-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HIF-1α-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-12-6P 694211-13-7P 694211-14-8P 694211-15-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HIPK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-31-0P 694220-32-1P 694220-33-2P 694220-34-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HIST1H2AA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-07-6P 694222-08-7P 694222-09-8P 694222-10-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HMB-CoA reductase-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-18-8P 694213-19-9P 694213-20-2P 694213-21-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HNF4A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-22-4P 694213-23-5P 694213-24-6P 694213-25-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HNG4G-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-83-2P 694218-84-3P 694218-85-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of HRAS-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-26-8P 694213-27-9P 694213-28-0P 694213-29-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HSAJ2425-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-75-6P 694216-76-7P 694216-77-8P 694216-78-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HSPCA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-16-0P 694211-17-1P 694211-18-2P 694211-19-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HUS1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-87-9P 694221-88-0P 694221-89-1P 694221-90-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of HnmT-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-45-0P 694204-46-1P 694204-47-2P 694204-48-3P 694204-50-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IGF1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-49-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IGF1R-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-76-0P 694217-77-1P 694217-78-2P 694217-79-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IKBKE-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-80-6P 694217-81-7P 694217-82-8P 694217-83-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IKBKG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-49-7P 694217-50-0P 694217-51-1P 694217-52-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IL1R1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-53-0P 694204-54-1P 694204-55-2P 694204-56-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of INPP5D-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-57-4P 694204-58-5P 694204-59-6P 694204-60-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of INSR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-53-3P 694217-54-4P 694217-55-5P 694217-56-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IRAK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-61-0P 694204-62-1P 694204-63-2P 694204-64-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of IRS1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-71-8P 694218-72-9P 694218-73-0P 694218-74-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ITGA4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-67-2P 694218-68-3P 694218-69-4P 694218-70-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ITGB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-88-7P 694206-89-8P 694206-90-1P 694206-91-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ITK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-92-3P 694206-93-4P 694206-94-5P 694206-95-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of JAK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694206-96-7P 694206-97-8P 694206-98-9P 694206-99-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of JAK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-00-6P 694207-01-7P 694207-02-8P 694207-03-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of JAK3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-20-6P 694211-21-7P 694211-22-8P 694211-23-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of JUN-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-24-0P 694211-25-1P 694211-26-2P 694211-27-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of JUNB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-10-6P 694215-11-7P 694215-12-8P 694215-13-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KCNH1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-02-6P 694215-03-7P 694215-04-8P 694215-05-9P 694215-06-0P 694215-07-1P 694215-08-2P 694215-09-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KCNH2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-04-0P 694207-05-1P 694207-06-2P 694207-07-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KDR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-08-4P 694207-09-5P 694207-10-8P 694207-11-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KIAA1079-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-12-0P 694207-13-1P 694207-14-2P 694207-15-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KIT-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-65-1P 694215-66-2P 694215-67-3P 694215-68-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KLK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-14-0P 694203-15-1P 694203-16-2P 694203-17-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KNSL1(EG5)-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-79-6P 694218-80-9P 694218-81-0P 694218-82-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of KRAS2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-16-4P 694207-17-5P 694207-18-6P 694207-19-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LCK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-35-4P 694220-36-5P 694220-37-6P 694220-38-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LMNB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-39-8P 694220-40-1P 694220-41-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LMNB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-28-4P 694211-29-5P 694211-30-8P 694211-31-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LOC51053-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-20-0P 694207-21-1P 694207-22-2P 694207-23-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LTK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-24-4P 694207-25-5P 694207-26-6P 694207-27-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of LYN-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-32-0P 694211-33-1P 694211-34-2P 694211-35-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAD2L1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-36-4P 694211-37-5P 694211-38-6P 694211-39-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAD2L2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-06-0P 694203-07-1P 694203-08-2P 694203-09-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAP2K1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-10-6P 694203-11-7P 694203-12-8P 694203-13-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAP2K2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-00-6P 694219-01-7P 694219-02-8P 694219-03-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAP2K4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-04-0P 694219-05-1P 694219-06-2P 694219-07-3P 694219-08-4P
694219-09-5P 694219-10-8P 694219-11-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAP2K7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-97-2P 694216-98-3P 694216-99-4P 694217-00-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAP3K5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-12-0P 694219-13-1P 694219-14-2P 694219-15-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAPK8-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694219-16-4P 694219-17-5P 694219-18-6P 694219-19-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MAPK9-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-63-4P 694222-64-5P 694222-65-6P 694222-66-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MASS1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-28-8P 694207-29-9P 694207-30-2P 694207-31-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MATK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-40-0P 694211-41-1P 694211-42-2P 694211-43-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-44-4P 694211-45-5P 694211-46-6P 694211-47-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-48-8P 694211-49-9P 694211-50-2P 694211-51-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-52-4P 694211-53-5P 694211-54-6P 694211-55-7P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-56-8P 694211-57-9P 694211-58-0P 694211-59-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-60-4P 694211-61-5P 694211-62-6P 694211-63-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MCM7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-64-8P 694211-65-9P 694211-66-0P 694211-67-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MDM2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-32-4P 694207-33-5P 694207-34-6P 694207-35-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MERTK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-36-8P 694207-37-9P 694207-38-0P 694207-39-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MET-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-68-2P 694211-69-3P 694211-70-6P 694211-71-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MKI67-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-65-4P 694204-66-5P 694204-67-6P 694204-68-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MLLT7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-72-8P 694211-73-9P 694211-74-0P 694211-75-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MNAT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-40-4P 694207-41-5P 694207-42-6P 694207-43-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);
PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MST1R-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-44-8P 694207-45-9P 694207-46-0P 694207-47-1P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MUSK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-42-3P 694220-43-4P 694220-44-5P 694220-45-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MYB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-76-2P 694211-77-3P 694211-78-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MYC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-46-7P 694220-47-8P 694220-48-9P 694220-49-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of MYT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-54-7P 694220-55-8P 694220-56-9P 694220-57-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NFKBIA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-50-3P 694220-51-4P 694220-52-5P 694220-53-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NFKBIB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-58-1P 694220-59-2P 694220-60-5P 694220-61-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NFKBIE-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-71-4P 694222-72-5P 694222-73-6P 694222-74-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NNMT-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-31-7P 694217-32-8P 694217-33-9P 694217-34-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NOS2A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-11-2P 694222-12-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NOS3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-38-2P 694213-39-3P 694213-40-6P 694213-41-7P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1D1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-42-8P 694213-43-9P 694213-44-0P 694213-45-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1H2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-46-2P 694213-47-3P 694213-48-4P 694213-49-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1H3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-50-8P 694213-51-9P 694213-52-0P 694213-53-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1H4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-54-2P 694213-55-3P 694213-56-4P 694213-57-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1I2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-58-6P 694213-59-7P 694213-60-0P 694213-61-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR1I3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-62-2P 694213-63-3P 694213-64-4P 694213-65-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2C1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-66-6P 694213-67-7P 694213-68-8P 694213-69-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2C2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-70-2P 694213-71-3P 694213-72-4P 694213-73-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2E1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-74-6P 694213-75-7P 694213-76-8P 694213-77-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2E3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-78-0P 694213-79-1P 694213-80-4P 694213-81-5P 694213-83-7P

694213-84-8P 694213-85-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2F1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-82-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2F2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-86-0P 694213-87-1P 694213-88-2P 694213-89-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR2F6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-90-6P 694213-91-7P 694213-92-8P 694213-93-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR3C1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-94-0P 694213-95-1P 694213-96-2P 694213-97-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR3C2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-98-4P 694213-99-5P 694214-00-1P 694214-01-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR4A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-02-3P 694214-03-4P 694214-04-5P 694214-05-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR4A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-06-7P 694214-07-8P 694214-08-9P 694214-09-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR4A3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-10-3P 694214-11-4P 694214-12-5P 694214-13-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR5A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-14-7P 694214-15-8P 694214-16-9P 694214-17-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR5A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-18-1P 694214-19-2P 694214-20-5P 694214-21-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NR6A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-30-4P 694213-31-5P 694213-32-6P 694213-33-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NROB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694213-34-8P 694213-35-9P 694213-36-0P 694213-37-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NROB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-48-2P 694207-49-3P 694207-50-6P 694207-51-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NTRK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-52-8P 694207-53-9P 694207-54-0P 694207-55-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NTRK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-56-2P 694207-57-3P 694207-58-4P 694207-59-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NTRK3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-62-7P 694220-63-8P 694220-64-9P 694220-65-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NUMA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-66-1P 694220-67-2P 694220-68-3P 694220-69-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of NUP153-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-42-6P 694221-43-7P 694221-44-8P 694221-45-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of Nramp1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-70-7P 694220-71-8P 694220-72-9P 694220-73-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of OPA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-79-5P 694211-80-8P 694211-81-9P 694211-82-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC1L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-83-1P 694211-84-2P 694211-85-3P 694211-86-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC2L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-87-5P 694211-88-6P 694211-89-7P 694211-90-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC3L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-91-1P 694211-92-2P 694211-93-3P 694211-94-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC4L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-95-5P 694211-96-6P 694211-97-7P 694211-98-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC5L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694211-99-9P 694212-00-5P 694212-01-6P 694212-02-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ORC6L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-93-5P 694215-94-6P 694215-95-7P 694215-96-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of OXTR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-08-1P 694218-09-2P 694218-10-5P 694218-11-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-12-7P 694218-13-8P 694218-14-9P 694218-15-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-16-1P 694218-17-2P 694218-18-3P 694218-19-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-20-7P 694218-21-8P 694218-22-9P 694218-23-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-24-1P 694218-25-2P 694218-26-3P 694218-27-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-28-5P 694218-29-6P 694218-30-9P 694218-31-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PAK7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-74-1P 694220-75-2P 694220-76-3P 694220-77-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PARVA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-03-8P 694212-04-9P 694212-05-0P 694212-06-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PCNA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-84-4P 694203-85-5P 694203-86-6P 694203-87-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDGF A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-88-8P 694203-89-9P 694203-90-2P 694203-91-3P 694203-92-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDGF B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-60-8P 694207-61-9P 694207-62-0P 694207-63-1P 694207-64-2P
694207-65-3P 694207-66-4P 694207-67-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDGFRA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-55-2P 694216-56-3P 694216-57-4P 694216-58-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-59-6P 694216-60-9P 694216-61-0P 694216-62-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)

IT 694204-69-8P 694204-70-1P 694204-71-2P 694204-72-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PDPK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-26-1P 694214-27-2P 694214-28-3P 694214-29-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PGR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-33-8P 694222-34-9P 694222-35-0P 694222-36-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIGA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-73-4P 694204-74-5P 694204-75-6P 694204-76-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIK3CA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-77-8P 694204-78-9P 694204-79-0P 694204-80-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIK3CB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-78-5P 694220-79-6P 694220-80-9P 694220-81-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIK3CG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-81-4P 694204-82-5P 694204-83-6P 694204-84-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIK3R1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-85-8P 694204-86-9P 694204-87-0P 694204-88-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIK3R2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-10-7P 694212-11-8P 694212-12-9P 694212-13-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIN1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-14-1P 694212-15-2P 694212-16-3P 694212-17-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PIN1L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)
IT 694218-64-9P 694218-65-0P 694218-66-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PLCG1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694202-94-3P 694202-95-4P 694202-96-5P 694202-97-6P 694212-07-2P 694212-08-3P 694212-09-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PLK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694214-30-7P 694214-31-8P 694214-32-9P 694214-33-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PPARA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694214-34-1P 694214-35-2P 694214-36-3P 694214-37-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PPARD-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694214-38-5P 694214-39-6P 694214-40-9P 694214-41-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PPARG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694216-63-2P 694216-64-3P 694216-65-4P 694216-66-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PPP2CA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694204-89-2P 694204-90-5P 694204-91-6P 694204-92-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PPP2R2B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694218-96-7P 694218-97-8P 694218-98-9P 694218-99-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PRKCA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694220-82-1P 694220-83-2P 694220-84-3P 694220-85-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PRKDC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694222-52-1P 694222-53-2P 694222-54-3P 694222-55-4P 694222-56-5P 694222-57-6P 694222-58-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of PSEN1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-59-8P 694222-60-1P 694222-61-2P 694222-62-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PSEN2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694216-09-6P 694216-10-9P 694216-11-0P 694216-12-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTCH-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-93-8P 694204-94-9P 694204-95-0P 694204-96-1P 694216-51-8P 694216-52-9P 694216-53-0P 694216-54-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTEN-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-68-6P 694207-69-7P 694207-70-0P 694207-71-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-72-2P 694207-73-3P 694207-74-4P 694207-75-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK2B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-76-6P 694207-77-7P 694207-78-8P 694207-79-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-80-2P 694207-81-3P 694207-82-4P 694207-83-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK7-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-84-6P 694207-85-7P 694207-86-8P 694207-87-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK9-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-88-0P 694207-89-1P 694207-90-4P 694207-91-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PTK9L-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-01-1P 694217-02-2P 694217-03-3P 694217-04-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of PVR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-56-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of QB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-57-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of QB2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-58-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of QB3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-59-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of QB4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-74-9P 694202-75-0P 694202-76-1P 694202-77-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAB5A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-78-3P 694202-79-4P 694202-80-7P 694202-81-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAB5B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694202-82-9P 694202-83-0P 694202-84-1P 694202-85-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAB5C-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-18-5P 694212-19-6P 694212-20-9P 694212-21-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAD1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-22-1P 694212-23-2P 694212-24-3P 694212-25-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAD17-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-26-5P 694212-27-6P 694212-28-7P 694212-29-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RAD9A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-92-3P 694218-93-4P 694218-94-5P 694218-95-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RALGDS-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-42-1P 694214-43-2P 694214-44-3P 694214-45-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RARA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-46-5P 694214-47-6P 694214-48-7P 694214-49-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RARB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-50-1P 694214-51-2P 694214-52-3P 694214-53-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RARG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-86-5P 694220-87-6P 694220-88-7P 694220-89-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RASA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-30-1P 694212-31-2P 694212-32-3P 694212-33-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RB1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-34-5P 694212-35-6P 694212-36-7P 694212-37-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RBBP2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-38-9P 694212-39-0P 694212-40-3P 694212-41-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RBL1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-42-5P 694212-43-6P 694212-44-7P 694212-45-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RBL2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-46-9P 694212-47-0P 694212-48-1P 694212-49-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RBP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-89-5P 694217-90-8P 694217-91-9P 694217-92-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RELA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-92-6P 694207-93-7P 694207-94-8P 694207-95-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RET-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-48-9P 694218-49-0P 694218-50-3P 694218-51-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RIPK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-04-7P 694218-05-8P 694218-06-9P 694218-07-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ROCK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694207-96-0P 694207-97-1P 694207-98-2P 694207-99-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ROR1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-00-9P 694208-01-0P 694208-02-1P 694208-03-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ROR2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-54-5P 694214-55-6P 694214-56-7P 694214-57-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RORA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-58-9P 694214-59-0P 694214-60-3P 694214-61-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RORB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-62-5P 694214-63-6P 694214-64-7P 694214-65-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RORC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-04-3P 694208-05-4P 694208-06-5P 694208-07-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of ROS1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-50-5P 694212-51-6P 694212-52-7P 694212-53-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RPA3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694204-97-2P 694204-98-3P 694204-99-4P 694205-00-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RPS6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-01-1P 694205-02-2P 694205-03-3P 694205-04-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RPS6KA1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-05-5P 694205-06-6P 694205-07-7P 694205-08-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RPS6KA3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-66-9P 694214-67-0P 694214-68-1P 694214-69-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RXRA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-70-5P 694214-71-6P 694214-72-7P 694214-73-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RXRB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-74-9P 694214-75-0P 694214-76-1P 694214-77-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RXRG-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-08-7P 694208-09-8P 694208-10-1P 694208-11-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of RYK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-09-9P 694205-10-2P 694205-11-3P 694205-12-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SGK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-54-9P 694212-55-0P 694212-56-1P 694212-57-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);

PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SKP1A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-58-3P 694212-59-4P 694212-60-7P 694212-61-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SKP2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-26-4P 694215-27-5P 694215-28-6P 694215-29-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC21A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-30-0P 694215-31-1P 694215-32-2P 694215-33-3P 694215-34-4P 694215-35-5P 694215-36-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC21Z3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-53-7P 694215-54-8P 694215-55-9P 694215-56-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC26A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-37-7P 694215-38-8P 694215-39-9P 694215-40-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC28A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-41-3P 694215-42-4P 694215-43-5P 694215-44-6P 694215-45-7P 694215-46-8P 694215-47-9P 694215-48-0P 694215-49-1P 694215-50-4P 694215-51-5P 694215-52-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC29A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-27-1P 694217-28-2P 694217-29-3P 694217-30-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC2A4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-57-1P 694215-58-2P 694215-59-3P 694215-60-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC4A4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-18-4P 694215-19-5P 694215-20-8P 694215-21-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC6A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene

silencing)
IT 694215-22-0P 694215-23-1P 694215-24-2P 694215-25-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC6A2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694220-90-1P 694220-91-2P 694220-92-3P 694220-93-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SLC9A1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694216-90-5P 694216-91-6P 694216-92-7P 694216-93-8P 694216-94-9P 694216-95-0P 694216-96-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SMAC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694216-13-2P 694216-14-3P 694216-15-4P 694216-16-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SMO-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694212-62-9P 694212-63-0P 694212-64-1P 694212-65-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SNK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694217-09-9P 694217-10-2P 694217-11-3P 694217-12-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SOS1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694221-46-0P 694221-47-1P 694221-48-2P 694221-49-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SPINK5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694208-12-3P 694208-13-4P 694208-14-5P 694208-15-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SRC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694218-75-2P 694218-76-3P 694218-77-4P 694218-78-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of STAT1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)
IT 694221-99-3P 694222-00-9P 694222-01-0P 694222-02-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of STAT6-specific siRNA; algorithms for rational

design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-66-3P 694212-67-4P 694212-68-5P 694212-69-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of STK12-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-67-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of STK6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-16-7P 694208-17-8P 694208-18-9P 694208-19-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SYK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-38-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SeAP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-39-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SeAP2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-40-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SeAP3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-41-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of SeAP4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-71-1P 694221-72-2P 694221-73-3P 694221-74-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TAP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-20-3P 694208-21-4P 694208-22-5P 694208-23-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TEC-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-94-5P 694220-95-6P 694220-96-7P 694220-97-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TEGT-specific siRNA; algorithms for rational

design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-24-7P 694208-25-8P 694208-26-9P 694208-27-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TEK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694220-98-9P 694220-99-0P 694221-00-6P 694221-01-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TERT-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-70-9P 694212-71-0P 694212-72-1P 694212-73-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TFDP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-74-3P 694212-75-4P 694212-76-5P 694212-77-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TFDP2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-78-3P 694214-79-4P 694214-80-7P 694214-81-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of THRA-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-82-9P 694214-83-0P 694214-84-1P 694214-85-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of THRB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-28-1P 694208-29-2P 694208-30-5P 694208-31-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TIE-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-45-3P 694217-46-4P 694217-47-5P 694217-48-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TNFRSF1A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-84-0P 694217-85-1P 694217-86-2P 694217-87-3P 694217-88-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TNFRSF5-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-02-8P 694221-03-9P 694221-04-0P 694221-05-1P 694221-06-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TNFRSF6-specific siRNA; algorithms for rational

design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-32-7P 694208-33-8P 694208-34-9P 694208-35-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TNK1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-07-3P 694221-08-4P 694221-09-5P 694221-10-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TOP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-11-9P 694221-12-0P 694221-13-1P 694221-14-2P 694221-16-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TOP2A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-15-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TOP3A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-78-7P 694212-79-8P 694212-80-1P 694212-81-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TP53-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-82-3P 694212-83-4P 694212-84-5P 694212-85-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TP63-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-86-7P 694212-87-8P 694212-88-9P 694212-89-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TP73-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-66-8P 694217-67-9P 694217-68-0P 694217-69-1P 694217-70-4P 694217-71-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TRADD-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-57-7P 694217-58-8P 694217-59-9P 694217-60-2P 694217-61-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TRAF2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694217-62-4P 694217-63-5P 694217-64-6P 694217-65-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of TRAF6-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-13-5P 694205-14-6P 694205-15-7P 694205-16-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TSC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-17-9P 694205-18-0P 694205-19-1P 694205-20-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TSC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-36-1P 694208-37-2P 694208-38-3P 694208-39-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TXK-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-40-7P 694208-41-8P 694208-42-9P 694208-43-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TYK2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-44-1P 694208-45-2P 694208-46-3P 694208-47-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of TYRO3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-52-5P 694218-53-6P 694218-54-7P 694218-55-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of VAV1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694218-56-9P 694218-57-0P 694218-58-1P 694218-59-2P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of VAV2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-86-3P 694214-87-4P 694214-88-5P 694214-89-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of VDR-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-23-3P 694221-24-4P 694221-25-5P 694221-26-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of WEE1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694215-73-1P 694215-74-2P 694215-75-3P 694215-76-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of XPNPEP1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694205-21-5P 694205-22-6P 694205-23-7P 694205-24-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of XPO1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694208-48-5P 694208-49-6P 694208-50-9P 694208-51-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of YES1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694212-90-3P 694212-91-4P 694212-92-5P 694212-93-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of YWHAZ-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-58-4P 694221-59-5P 694221-60-8P 694221-61-9P 694221-62-0P
694221-63-1P 694221-64-2P 694221-65-3P 694221-66-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of activin A **receptor** IB-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-75-8P 694222-76-9P 694222-77-0P 694222-78-1P 694222-79-2P
694222-80-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of angiotensin II type 1 **receptor** -specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-02-6P 694203-03-7P 694203-04-8P 694203-05-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of c-Myc-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-18-4P 694203-19-5P 694203-20-8P 694203-21-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of cyclophilin A-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-26-4P 694203-27-5P 694203-28-6P 694203-29-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of cyclophilin B-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694199-63-8P 694199-64-9P 694199-65-0P 694199-66-1P 694199-67-2P
694199-68-3P 694199-69-4P 694199-70-7P 694199-71-8P 694199-72-9P
694199-73-0P 694199-74-1P 694199-75-2P 694199-76-3P 694199-77-4P
694199-78-5P 694199-79-6P 694199-80-9P 694199-81-0P 694199-82-1P
694199-83-2P 694199-84-3P 694199-85-4P 694199-86-5P 694199-87-6P
694199-88-7P 694199-89-8P 694199-90-1P 694199-91-2P 694199-92-3P
694199-93-4P 694199-94-5P 694199-95-6P 694199-96-7P 694199-97-8P

694199-98-9P 694199-99-0P 694200-00-5P 694200-01-6P 694200-02-7P
694200-03-8P 694200-04-9P 694200-05-0P 694200-06-1P 694200-07-2P
694200-08-3P 694200-09-4P 694200-10-7P 694200-11-8P 694200-12-9P
694200-13-0P 694200-14-1P 694200-15-2P 694200-16-3P 694200-17-4P
694200-18-5P 694200-19-6P 694200-20-9P 694200-21-0P 694200-22-1P
694200-23-2P 694200-24-3P 694200-25-4P 694200-26-5P 694200-27-6P
694200-28-7P 694200-29-8P 694200-30-1P 694200-31-2P 694200-32-3P
694200-33-4P 694200-34-5P 694200-35-6P 694200-36-7P 694200-37-8P
694200-38-9P 694200-39-0P 694200-40-3P 694200-41-4P 694200-42-5P
694200-43-6P 694200-44-7P 694200-45-8P 694200-46-9P 694200-47-0P
694200-48-1P 694200-49-2P 694200-50-5P 694200-51-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of cyclophilin-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694200-52-7P 694200-53-8P 694200-54-9P 694200-55-0P 694200-56-1P
694200-57-2P 694200-58-3P 694200-59-4P 694200-60-7P 694200-61-8P
694200-62-9P 694200-63-0P 694200-64-1P 694200-65-2P 694200-66-3P
694200-67-4P 694200-68-5P 694200-69-6P 694200-70-9P 694200-71-0P
694200-72-1P 694200-73-2P 694200-74-3P 694200-75-4P 694200-76-5P
694200-77-6P 694200-78-7P 694200-79-8P 694200-80-1P 694200-81-2P
694200-82-3P 694200-83-4P 694200-84-5P 694200-85-6P 694200-86-7P
694200-87-8P 694200-88-9P 694200-89-0P 694200-90-3P 694200-91-4P
694200-92-5P 694200-93-6P 694200-94-7P 694200-95-8P 694200-96-9P
694200-97-0P 694200-98-1P 694200-99-2P 694201-00-8P 694201-01-9P
694201-02-0P 694201-03-1P 694201-04-2P 694201-05-3P 694201-06-4P
694201-07-5P 694201-08-6P 694201-09-7P 694201-10-0P 694201-11-1P
694201-12-2P 694201-13-3P 694201-14-4P 694201-15-5P 694201-16-6P
694201-17-7P 694201-18-8P 694201-19-9P 694201-20-2P 694201-21-3P
694201-22-4P 694201-23-5P 694201-24-6P 694201-25-7P 694201-26-8P
694201-27-9P 694201-28-0P 694201-29-1P 694201-30-4P 694201-31-5P
694201-32-6P 694201-33-7P 694201-34-8P 694201-35-9P 694201-36-0P
694201-37-1P 694201-38-2P 694201-39-3P 694201-40-6P 694201-41-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of diazepam binding **inhibitor**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-42-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of fLUC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-43-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of fLUC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-44-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of fLUC3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-45-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of fLUC4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694222-37-2P 694222-38-3P 694222-39-4P 694222-40-7P 694222-41-8P
694222-42-9P 694222-43-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of factor VIII-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694201-42-8P 694201-43-9P 694201-44-0P 694201-45-1P 694201-46-2P
694201-47-3P 694201-48-4P 694201-49-5P 694201-50-8P 694201-51-9P
694201-52-0P 694201-53-1P 694201-54-2P 694201-55-3P 694201-56-4P
694201-57-5P 694201-58-6P 694201-59-7P 694201-60-0P 694201-61-1P
694201-62-2P 694201-63-3P 694201-64-4P 694201-65-5P 694201-66-6P
694201-67-7P 694201-68-8P 694201-69-9P 694201-70-2P 694201-71-3P
694201-72-4P 694201-73-5P 694201-74-6P 694201-75-7P 694201-76-8P
694201-77-9P 694201-78-0P 694201-79-1P 694201-80-4P 694201-81-5P
694201-82-6P 694201-83-7P 694201-84-8P 694201-85-9P 694201-86-0P
694201-87-1P 694201-88-2P 694201-89-3P 694201-90-6P 694201-91-7P
694201-92-8P 694201-93-9P 694201-94-0P 694201-95-1P 694201-96-2P
694201-97-3P 694201-98-4P 694201-99-5P 694202-00-1P 694202-01-2P
694202-02-3P 694202-03-4P 694202-04-5P 694202-05-6P 694202-06-7P
694202-07-8P 694202-08-9P 694202-09-0P 694202-10-3P 694202-11-4P
694202-12-5P 694202-13-6P 694202-14-7P 694202-15-8P 694202-16-9P
694202-17-0P 694202-18-1P 694202-19-2P 694202-20-5P 694202-21-6P
694202-22-7P 694202-23-8P 694202-24-9P 694202-25-0P 694202-26-1P
694202-27-2P 694202-28-3P 694202-29-4P 694202-30-7P 694202-31-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of firefly luciferase-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-72-0P 694203-73-1P 694203-74-2P 694203-75-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of glutamine:fructose 6-phosphate aminotransferase-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-34-6P 694221-35-7P 694221-36-8P 694221-37-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of interferon γ **receptor** 1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-27-7P 694221-28-8P 694221-29-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of interleukin 4 **receptor**-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-22-0P 694203-23-1P 694203-24-2P 694203-25-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of lamin A/C-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-46-8P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)

(nucleotide sequence of mCyclo_1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-47-9P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of mCyclo_2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-48-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of mCyclo_3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-49-1P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of mCyclo_4-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-38-0P 694221-39-1P 694221-40-4P 694221-41-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of matrix metalloproteinase MMP-9-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694199-32-1 694199-33-2 694199-34-3 694199-35-4 694199-36-5
694199-37-6 694199-38-7 694199-39-8 694199-40-1 694199-41-2
694199-42-3 694199-43-4 694199-44-5 694199-45-6 694199-46-7
694199-47-8 694199-48-9 694199-49-0 694199-50-3 694199-51-4
694199-52-5 694199-53-6 694199-54-7 694199-55-8 694199-56-9
694199-57-0 694199-58-1 694199-59-2
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence of optimized siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-34-4P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of rLUC1-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-35-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of rLUC2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-36-6P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of rLUC3-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694203-37-7P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of rLUC4-specific siRNA; algorithms for rational

design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694199-60-5 694199-61-6 694199-62-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence of siRNA target; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694214-22-7P 694214-23-8P 694214-24-9P 694214-25-0P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-54-0P 694221-55-1P 694221-56-2P 694221-57-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of thymosin β4Y-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694221-30-2P 694221-31-3P 694221-32-4P 694221-33-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation)
(nucleotide sequence of β-arrestin 2-specific siRNA; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

IT 694224-43-6 694224-44-7 694224-47-0 694224-48-1 694224-49-2
694224-50-5 694224-51-6 694224-52-7 694224-53-8 694224-54-9
RL: PRP (Properties)
(unclaimed sequence; algorithms for rational design and selection of functional and hyperfunctional siRNA for gene silencing)

L40 ANSWER 7 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:287786** HCAPLUS
DN **140:315100**
ED Entered STN: 08 Apr 2004
TI Agents that modulate **Eph receptor** activity, therapeutic use, and screening methods
IN Pasquale, Elena B.; Koolpe, Mitchell; Murai, Keith K.
PA The Burnham Institute, USA
SO PCT Int. Appl., 97 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K038-00
ICS G01N033-53; C07K014-00
CC 1-12 (Pharmacology)
Section cross-reference(s): 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004028551	A1	20040408	WO 2003-US27328	20030829 <--
	WO 2004028551	C2	20040701		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,

FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
US 2004180823 A1 20040916 US 2003-652407 20030829 <--
PRAI US 2002-413242P P 20020924 <--
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004028551	ICM	A61K038-00
	ICS	G01N033-53; C07K014-00
WO 2004028551	ECLA	A61K047/48R2; A61K049/00F; C07K014/52; G01N033/68D <--
US 2004180823	NCL	514/012.000; 530/350.000
	ECLA	A61K049/00F; G01N033/68D <--

AB Agents are described that bind to **Eph receptors.** Methods of using these agents to modulate the activity of **Eph receptors**, stimulate apoptosis, and deliver therapeutic agents are also described. Methods of screening for agents capable of selectively binding to **Eph receptors** are also described.

ST **Eph receptor** ligand screening therapeutic delivery apoptosis

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**Eph receptor**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Antitumor agents
Apoptosis
Drug delivery systems
Drug screening
Human
Mental retardation
NMR spectroscopy
Neoplasm
Nervous system agents
Peptide library
Peptidomimetics
Phage display library
Signal transduction, biological
(agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Isotopomers
Ligands
Peptides, biological studies
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT NMR spectroscopy
(carbon-13; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Imaging agents
(conjugates with **Eph receptor** ligands; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Nerve, disease
Nervous system, disease
(degeneration; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** A; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** B4; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 1; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor** 2; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 3; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 4; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 5; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor**, **EphA6**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor**, **EphA7**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor**, **EphA8**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-B **receptor** 1; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-B **receptor** 6; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-B **receptor**, **EphB2**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)
IT **Tyrosine kinase receptors**

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-B **receptor**, **EphB3**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT NMR spectroscopy
(fluorine-19; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Regeneration, animal
(nerve; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT NMR (nuclear magnetic resonance)
(nitrogen-15; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Phosphorylation, biological
(**protein**; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Nerve
(regeneration; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Therapy
(therapeutic agent-**Eph receptor** ligand conjugates; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Injury
(trauma, traumatic injury; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT Injury
(traumatic; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT 14390-96-6, Nitrogen-15, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(42agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT 248259-60-1, **Ephrin**-A8 **receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA8 receptor tyrosine kinase** ; agents modulating **Eph receptor** activity, therapeutic use, and screening methods)

IT 7782-41-4, Fluorine-19, biological studies 12385-13-6, Hydrogen atom, biological studies 14762-74-4, Carbon-13, biological studies 142243-02-5, MAP **kinase** 146279-97-2, **EphB2 receptor tyrosine kinase** 149433-90-9, **EphB1 receptor tyrosine kinase** **149433-91-0**, **EphA2 receptor tyrosine kinase** 149433-92-1, **Ephrin receptor tyrosine kinase** 160995-45-9, **EphA5 receptor tyrosine kinase** 167398-03-0, **EphA4 receptor tyrosine kinase** 204463-92-3, **EphA3 receptor tyrosine kinase** 204934-34-9, **EphB3 receptor tyrosine kinase** 205132-72-5, **EphA7 receptor tyrosine kinase** 205132-73-6, **EphA6 receptor tyrosine kinase** 216974-70-8, **EphB4 receptor tyrosine kinase** 225227-27-0, **EphB6 receptor**

tyrosine kinase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(agents modulating **Eph receptor** activity,
therapeutic use, and screening methods)
IT 207452-60-6 506411-75-2 532441-09-1 532441-10-4 532441-11-5
532441-12-6 676656-99-8 676657-00-4 676657-01-5 676657-02-6
676657-04-8 676657-05-9 676657-06-0 676657-07-1 677716-95-9
677716-96-0 677716-97-1
RL: BSU (Biological study, unclassified); PAC (Pharmacological activity);
PRP (Properties); BIOL (Biological study)
(agents modulating **Eph receptor** activity,
therapeutic use, and screening methods)
IT 677716-98-2 677716-99-3 677717-00-9 677717-01-0 677717-02-1
677717-03-2 677717-05-4 677717-06-5 677717-07-6 677717-08-7
677717-09-8 677717-10-1 677717-11-2 677717-12-3 677717-13-4
677717-14-5 677717-15-6 677717-16-7 677717-17-8 677717-18-9
677717-19-0 677717-20-3 677717-21-4 677717-22-5 677717-23-6
677717-24-7 677717-25-8 677717-26-9 677717-27-0
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(agents modulating **Eph receptor** activity,
therapeutic use, and screening methods)
IT 9001-78-9D, Alkaline phosphatase, **ephrin** fusion products
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(agents modulating **Eph receptor** activity,
therapeutic use, and screening methods)
IT 153369-29-0 677716-82-4 677716-83-5 677716-84-6 677716-85-7
677716-86-8 677716-87-9 677716-88-0 677716-89-1 677716-90-4
677716-91-5 677716-92-6 677716-93-7 677716-94-8 677717-28-1
677717-29-2 677717-30-5 677717-31-6 677717-32-7 677717-33-8
677717-34-9 677717-35-0
RL: PRP (Properties)
(unclaimed sequence; agents that modulate **Eph**
receptor activity, therapeutic use, and screening methods)
RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Mount Sinai Hosptial; WO 0037500 A1 2000 HCAPLUS

L40 ANSWER 8 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:142894 HCAPLUS
DN 140:180141
ED Entered STN: 22 Feb 2004
TI **EphA2** agonistic monoclonal antibodies for treating epithelial
cancer, carcinoma and metastasis
IN **Kinch, Michael S.**; Carles-Kinch, Kelly
PA Purdue Research Foundation, USA
SO PCT Int. Appl., 126 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K
CC 15-3 (Immunochemistry)
Section cross-reference(s): 3, 9, 63
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004014292	A2	20040219	WO 2003-US15046	20030512 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	CA 2485548	AA	20040219	CA 2003-2485548	20030512 <--
	US 2004091486	A1	20040513	US 2003-436783	20030512 <--
PRAI	US 2002-379368P	P	20020510 <--		
	US 2002-418204P	P	20021014 <--		
	US 2003-460358P	P	20030403 <--		
	WO 2003-US15046	W	20030512		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004014292	ICM	A61K
WO 2004014292	ECLA	C07K016/24; C07K016/30; C07K016/30B; C07K016/30P <--
US 2004091486	NCL	424/155.100
	ECLA	C07K016/30S <--

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of cancer, particularly, metastatic cancer. The methods of the invention comprise the administration of an effective amount of one or more antibodies that bind to and agonize **EphA2**, thereby increasing **EphA2** phosphorylation and decreasing **EphA2** levels in cells which **EphA2** has been agonized. The invention also encompasses antibodies that preferentially bind an **EphA2** epitope exposed on cancer cells but not non-cancer cells. The invention also provides pharmaceutical compns. comprising one or more **EphA2** antibodies of the invention either alone or in combination with one or more other agents useful for cancer therapy.

ST **EphA2** agonist monoclonal antibody hybridoma cancer carcinoma metastasis therapy

IT Animal cell line
Antitumor agents
Bladder, neoplasm
Blood analysis
Carcinoma
Carcinoma
Chemotherapy
Drug screening
Epithelium
Epitopes
Genetic vectors
Human
Immunotherapy
Kidney, neoplasm
Lung, neoplasm
Mammary gland, neoplasm
Neoplasm
Pancreas, neoplasm
Phosphorylation, biological
Prostate gland, neoplasm
Protein sequences
Radiotherapy
Skin, neoplasm
Surgery
Urine analysis
cDNA sequences

(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Nucleic acids
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Ligands
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Hybridoma
(PTA-4380; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Hybridoma
(PTA-4381; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Blood serum
Sputum
(anal.; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Body fluid
Needles (tools)
(aspirates; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Health products
(biologicals; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(bladder; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Diagnosis
(cancer; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Bladder, neoplasm
Lung, neoplasm
Mammary gland, neoplasm
Pancreas, neoplasm
Prostate gland, neoplasm
Skin, neoplasm
(carcinoma; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Drug delivery systems
(carriers; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Biology
(cell, host; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Intestine, neoplasm
(colon, carcinoma; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma

Intestine, neoplasm
(colon; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(cutaneous; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Immunoassay
(enzyme-linked immunosorbent assay; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT **Tyrosine kinase receptors**
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**ephrin type-A receptor 2**; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Cytometry
(flow; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Antibodies and Immunoglobulins
RL: ARU (Analytical role, unclassified); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(heavy chain; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Antibodies and Immunoglobulins
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(humanized; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Diagnosis
(immunodiagnosis; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Immunoassay
(immunofluorescence microscopy; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Antibodies and Immunoglobulins
RL: ARU (Analytical role, unclassified); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(light chain; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(mammary; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Neoplasm
(metastasis; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Antibodies and Immunoglobulins
RL: ARU (Analytical role, unclassified); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monoclonal; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma

(pancreatic; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(prostatic; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(pulmonary; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Kidney, neoplasm
(renal cell carcinoma; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Carcinoma
(renal cell; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT Hormones, animal, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(therapy; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 176714-45-7 625812-84-2 625812-85-3 625812-86-4 625812-87-5 625812-88-6
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 21820-51-9, **Phosphotyrosine**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 660006-49-5P 660006-50-8P
RL: ARU (Analytical role, unclassified); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 660006-51-9P 660006-52-0P
RL: ARU (Analytical role, unclassified); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 10540-29-1, Tamoxifen
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sensitivity enhancement; **EphA2** agonistic monoclonal antibodies for treating epithelial cancer, carcinoma and metastasis)

IT 660007-56-7 660007-57-8 660007-58-9 660007-59-0 660007-60-3 660062-76-0
RL: PRP (Properties)
(unclaimed nucleotide sequence; **ephA2** agonistic monoclonal

antibodies for treating epithelial cancer, carcinoma and metastasis)

L40 ANSWER 9 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:98325** HCAPLUS
DN **140:268510**
ED Entered STN: 06 Feb 2004
TI **Inhibition** of VEGF-dependent multistage carcinogenesis by soluble **EphA receptors**
AU Cheng, Nikki; Brantley, Dana; Fang, Wei Bin; Liu, Hua; Fanslow, William; Cerretti, Douglas Pat; Bussell, Katrin N.; Reith, Alastair D.; Jackson, Dowdy; Chen, Jin
CS Department of Cancer Biology and Vanderbilt-Ingram Cancer Center, Vanderbilt University School of Medicine, Nashville, TN, 37232, USA
SO Neoplasia (Wilton, CT, United States) (**2003**), 5(5), 445-456
CODEN: NEOPFL; ISSN: 1522-8002
PB Neoplasia Press Inc.
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB Elevated expression of **Eph receptors** has long been correlated with the growth of solid tumors. However, the functional role of this family of **receptor tyrosine kinases** in carcinogenesis and tumor angiogenesis has not been well characterized. Here the authors report that soluble **EphA receptors** **inhibit** tumor angiogenesis and tumor progression in vivo in the RIP-Tag transgenic model of vascular endothelial growth factor (VEGF)-dependent multistage pancreatic islet cell carcinoma. Soluble **EphA receptors** delivered either by a transgene or an osmotic minipump **inhibited** the formation of angiogenic islet, a premalignant lesion, and reduced tumor volume of solid islet cell carcinoma. **EphA2**-Fc or **EphA3**-Fc treatment resulted in decreased tumor volume but increased tumor and endothelial cell apoptosis in vivo. In addition, soluble **EphA receptors inhibited** VEGF and βTC tumor cell-conditioned medium-induced endothelial cell migration in vitro and VEGF-induced cornea angiogenesis in vivo. A dominant neg. **EphA2** mutant **inhibited**, whereas a gain-of-function **EphA2** mutant enhanced, tumor cell-induced endothelial cell migration, suggesting that **EphA2** **receptor** activation is required for tumor cell-endothelial cell interaction. These data provide functional evidence for **EphA** class **receptor** regulation of VEGF-dependent tumor angiogenesis, suggesting that the **EphA** signaling pathway may represent an attractive novel target for antiangiogenic therapy in cancer.
ST **EphA receptor inhibition** VEGF carcinogenesis pancreatic islet
IT Pancreatic islet of Langerhans, neoplasm
(carcinoma; soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor** **2**; soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** type-A **receptor** 3; soluble **EphA** **receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
IT Carcinoma

(pancreatic islet; soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
IT Transformation, neoplastic
(soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
IT Angiogenesis
Apoptosis
(soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis in relation to)
IT 127464-60-2, Vascular endothelial growth factor
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(soluble **EphA receptor inhibition** of VEGF-dependent multistage pancreatic islet cell carcinogenesis)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, R; Semin Cell Dev Biol 2002, V13, P55 HCAPLUS
(2) Bargmann, C; Cell 1986, V45, P649 HCAPLUS
(3) Bergers, G; Nat Cell Biol 2000, V2, P737 HCAPLUS
(4) Bergers, G; Science 1999, V284, P808 HCAPLUS
(5) Brantley, D; Oncogene 2002, V21, P7011 HCAPLUS
(6) Cheng, N; Cytokine Growth Factor Rev 2002, V13, P75 HCAPLUS
(7) Coussens, L; Science 2002, V295, P2387 HCAPLUS
(8) Cristofanilli, M; Nat Rev Drug Discov 2002, V1, P415 HCAPLUS
(9) Daniel, T; Cancer Res 1999, V59, P4574 HCAPLUS
(10) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(11) Duncan, A; Nature 1988, V332, P563 HCAPLUS
(12) Duncan, A; Nature 1988, V332, P563 HCAPLUS
(13) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(14) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(15) Hanahan, D; Cell 1996, V86, P353 HCAPLUS
(16) Hanahan, D; Eur J Cancer 1996, V32A, P2386 HCAPLUS
(17) Hanahan, D; Nature 1985, V315, P115 HCAPLUS
(18) Hattori, M; Science 2000, V289, P1360 HCAPLUS
(19) Holder, N; Development 1999, V126, P2033 HCAPLUS
(20) Jefferis, R; Mol Immunol 1990, V27, P1237 HCAPLUS
(21) Kenyon, B; Invest Ophthalmol Vis Sci 1996, V37, P1625 MEDLINE
(22) Kerbel, R; Nat Rev/Cancer 2002, V2, P727 HCAPLUS
(23) Kisker, O; Cancer Res 2001, V20, P7669
(24) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(25) Pandey, A; Science 1995, V268, P567 HCAPLUS
(26) Shao, H; J Biol Chem 1995, V270, P5636 HCAPLUS

L40 ANSWER 10 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:60252** HCAPLUS
DN **140:128427**
ED Entered STN: 26 Jan 2004
TI Preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders
IN Rice, Kenneth D.; Anand, Neel Kumar; Bussenius, Joerg; Costanzo, Simona; Kennedy, Abigail R.; Kim, Angie I.; Peto, Csaba J.; Tsang, Tsze H.; Blazey, Charles M.
PA Exelixis, Inc., USA
SO PCT Int. Appl., 266 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K
CC 28-16 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 1, 33, 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2004006846	A2	20040122	WO 2003-US21923	20030714	<--
	WO 2004006846	A3	20040715			
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	CA 2491191	AA	20040122	CA 2003-2491191	20030714	<--
	EP 1521747	A2	20050413	EP 2003-764599	20030714	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
PRAI	US 2002-396269P	P	20020715	<--		
	US 2003-447212P	P	20030213	<--		
	WO 2003-US21923	W	20030714			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004006846	ICM	A61K
WO 2004006846	ECLA	C07D239/94; C07D401/12+239+211; C07D401/12+239+213; C07D403/12+239+209; C07D403/12+239+231; C07D405/12+307B+239; C07D405/12+319+239; C07D413/12+265D+239; C07D413/12+271+239; C07D417/12+277B+239; C07D451/06C; C07D471/04+221A+221AC07D403/12+239+209; C07D487/04+241C+209C; C07D487/04+241C+221C; C07D493/04+307B+307B+2; C07D498/04+265C+209C; C07D498/04+265C+265C+2 <--

OS MARPAT 140:128427

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The present invention provides quinazolines (shown as I; variables defined below; e.g. II and III) for modulating **receptor tyrosine kinase** activity, particularly **ephrin** and EGFR, and methods of treating diseases mediated by **receptor kinase** activity using the compds. and pharmaceutical compns. thereof. Diseases mediated by **receptor kinase** activity include, but are not limited to, diseases characterized in part by abnormal levels of cell proliferation (i.e. tumor growth), programmed cell death (apoptosis), cell migration and invasion and angiogenesis associated with tumor growth. Compds. of the invention include 'spectrum selective' **kinase** modulators, compds. that **inhibit**, regulate and/or modulate signal transduction across subfamilies of **receptor**-type **tyrosine kinases**, including **ephrin** and EGFR. **Inhibitory** activities for >200 examples of I are tabulated for some or all of **EphB4**, **EphA2**, KDR, Flt-1, EGFR and ErbB2 **kinases**. Although the methods of preparation are not claimed,

37 example prepns. are included. For example, 1,4:3,6-dianhydro-2-O-[4-[(3-chloro-2-methylphenyl)amino]-6-(methyloxy)quinazolin-7-yl]-5-O-methyl-L-iditol hydrochloride was prepared in 2 steps (94, 51 % yields, resp.) starting with mesylation of 1,4:3,6-dianhydro-2-O-methyl-D-glucitol followed by ether formation of the intermediate 1,4:3,6-dianhydro-2-O-methyl-5-O-(methylsulfonyl)-D-glucitol with 4-[(3,4-dichlorophenyl)amino]-6-(methyloxy)quinazolin-7-ol; the quinazolinol was prepared in 64 % yield from 4-chloro-6-(methyloxy)-7-[(phenylmethyl)oxy]quinazoline hydrochloride and 3,4-dichloroaniline. For I: R1 is C1-C3 (un)substituted alkyl; R2 = H, halogen, trihalomethyl, CN, NH2, NO2, OR3, N(R3)R4, S(O)0-2R4, SO2N(R3)R4, CO2R3, C(O)N(R3)R4, N(R3)SO2R4, N(R3)C(O)R3, N(R3)CO2R4, C(O)R3, (un)substituted lower alkyl, (un)substituted lower alkenyl, and (un)substituted lower alkynyl; R3 is H or R4; R4 = (un)substituted lower alkyl, (un)substituted aryl, (un)substituted lower arylalkyl, (un)substituted heterocyclyl, and (un)substituted lower heterocyclylalkyl; or R3 and R4, when taken together with a common N to which they are attached, form an (un)substituted 5-7-membered heterocyclyl, said (un)substituted five-to seven-membered heterocyclyl optionally containing at least one addnl. heteroatom = N, O, S, and P. Q is 0-5; Z = OCH2, O, S(O)0-2, N(R5)CH2, and NR5; R5 is -H or (un)substituted lower alkyl; M1 is H, (un)substituted C1-C8 alkyl-L2-L1, G(CH2)0-3, or R53(R54)N(CH2)0-3; wherein G is a saturated 5-7-membered heterocyclyl containing 1-2 annular heteroatoms; L1 is C:O or SO2; L2 is a direct bond, O, or NH; M2 is a saturated or mono- or polyunsatd. C3-C14 mono- or fused-polycyclic hydrocarbyl optionally containing 1-3 annular heteroatoms per ring; M3 is NR9, O, or absent; M4 is CH2, CH2CH2, CH2CH2CH2, or absent; addnl. details are given in the claims.

ST quinazoline prepn **ephrin** EGFR **receptor kinase** **inhibitor** antitumor compn

IT Alditols
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT Antitumor agents
Apoptosis
Drug delivery systems
Human
Neoplasm
(preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT Structure-activity relationship
(**protein (tyrosine) kinase-inhibiting**; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT Vascular endothelial growth factor **receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type VEGFR-2, **inhibitors**; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 650577-72-3P 650579-40-1P 650579-55-8P 650579-56-9P 650579-73-0P 650579-75-2P 650579-79-6P 650579-84-3P
RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(drug candidate; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and

other disorders)

IT 650577-29-0P 650577-32-5P 650577-33-6P 650577-34-7P 650577-35-8P
650577-36-9P 650577-37-0P 650577-38-1P 650577-39-2P 650577-40-5P
650577-41-6P 650577-42-7P 650577-43-8P 650577-44-9P 650577-45-0P
650577-46-1P 650577-47-2P 650577-48-3P 650577-53-0P 650577-57-4P
650577-64-3P 650577-69-8P 650577-73-4P 650577-74-5P 650577-75-6P
650577-76-7P 650577-79-0P 650577-80-3P 650577-81-4P 650577-82-5P
650577-83-6P 650577-89-2P 650577-90-5P 650577-91-6P 650577-92-7P
650577-93-8P 650577-96-1P 650578-03-3P 650578-07-7P 650578-08-8P
650578-09-9P 650578-10-2P 650578-11-3P 650578-18-0P 650578-19-1P
650578-20-4P 650578-23-7P 650578-24-8P 650578-25-9P 650578-26-0P
650578-28-2P 650578-29-3P 650578-30-6P 650578-31-7P 650578-32-8P
650578-33-9P 650578-34-0P 650578-35-1P 650578-36-2P 650578-41-9P
650578-50-0P 650578-51-1P 650578-52-2P 650578-53-3P 650578-54-4P
650578-55-5P 650578-56-6P 650578-57-7P 650578-58-8P 650578-59-9P
650578-60-2P 650578-61-3P 650578-62-4P 650578-64-6P 650578-65-7P
650578-68-0P 650578-70-4P 650578-75-9P 650578-83-9P 650578-84-0P
650578-85-1P 650578-86-2P 650578-87-3P 650578-88-4P 650578-89-5P
650578-90-8P 650578-91-9P 650578-92-0P 650578-93-1P 650578-94-2P
650578-95-3P 650578-96-4P 650578-97-5P 650578-98-6P 650578-99-7P
650579-00-3P 650579-01-4P 650579-02-5P 650579-03-6P 650579-04-7P
650579-05-8P 650579-06-9P 650579-07-0P 650579-08-1P 650579-09-2P
650579-10-5P 650579-11-6P 650579-12-7P 650579-13-8P 650579-14-9P
650579-15-0P 650579-16-1P 650579-17-2P 650579-18-3P 650579-19-4P
650579-20-7P 650579-21-8P 650579-22-9P 650579-23-0P 650579-24-1P
650579-25-2P 650579-26-3P 650579-27-4P 650579-28-5P 650579-29-6P
650579-30-9P 650579-31-0P 650579-32-1P 650579-33-2P 650579-34-3P
650579-35-4P 650579-36-5P 650579-37-6P 650579-41-2P 650579-42-3P
650579-43-4P 650579-44-5P 650579-45-6P 650579-46-7P 650579-48-9P
650579-50-3P 650579-52-5P 650579-57-0P 650579-58-1P 650579-59-2P
650579-60-5P 650579-61-6P 650579-62-7P 650579-64-9P 650579-67-2P
650579-68-3P 650579-69-4P 650579-76-3P 650579-77-4P 650579-80-9P
650579-81-0P 650579-85-4P 650579-86-5P 650579-87-6P 650579-88-7P
650579-89-8P 650579-90-1P 650579-91-2P 650579-92-3P 650579-93-4P
650579-94-5P 650579-95-6P 650579-96-7P 650579-97-8P 650579-98-9P
650579-99-0P 650580-00-0P 650580-01-1P 650580-02-2P 650580-03-3P
650580-04-4P 650580-05-5P 650580-06-6P 650580-07-7P 650580-08-8P
650580-09-9P 650580-10-2P 650580-11-3P 650580-12-4P 650580-13-5P
650580-14-6P 650580-15-7P 650580-16-8P 650580-17-9P 650580-18-0P
650580-19-1P 650580-20-4P 650580-21-5P 650580-22-6P 650580-23-7P
650580-24-8P 650580-25-9P 650580-26-0P 650580-27-1P 650580-28-2P
650580-29-3P 650580-30-6P 650580-31-7P 650580-32-8P 650580-33-9P
650580-34-0P 650580-35-1P 650580-36-2P 650580-37-3P 650580-38-4P
650580-39-5P 650580-40-8P 650580-41-9P 650580-42-0P 650580-43-1P
650580-44-2P 650580-45-3P 650580-46-4P 650580-47-5P 650580-48-6P
650580-49-7P 650580-50-0P 650580-51-1P 650580-52-2P 650580-53-3P
650580-54-4P 650580-55-5P 650580-56-6P 650580-57-7P 650580-58-8P
650580-59-9P 650580-60-2P 650580-61-3P 650580-62-4P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(drug candidate; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 650580-63-5P 650580-64-6P 650580-65-7P 650580-66-8P 650580-67-9P
650580-68-0P 650580-69-1P 650580-70-4P 650580-71-5P 650580-72-6P
650580-73-7P 650580-74-8P 650580-75-9P 650580-76-0P 650580-77-1P
650580-78-2P 650580-79-3P 650580-80-6P 650580-81-7P 650580-82-8P
650580-83-9P 650580-84-0P 650580-85-1P 650580-86-2P 650580-87-3P
650580-88-4P 650580-89-5P 650580-90-8P 650580-91-9P 650580-92-0P

650580-93-1P 650580-94-2P 650580-95-3P 650580-96-4P 650580-97-5P
650580-98-6P 650580-99-7P 650581-00-3P 650581-01-4P 650581-02-5P
650581-03-6P 650581-04-7P 650581-05-8P 650581-06-9P 650581-07-0P
650581-08-1P 650581-09-2P 650581-10-5P 650581-11-6P 650581-12-7P
650581-13-8P 650581-14-9P 650581-15-0P 650581-16-1P 650581-17-2P
650581-18-3P 650581-19-4P 650581-20-7P 650581-21-8P 650581-22-9P
650581-23-0P 650581-24-1P 650581-25-2P 650581-26-3P 650581-27-4P
650581-28-5P 650581-29-6P 650581-30-9P 650581-31-0P 650581-32-1P
650581-33-2P 650581-34-3P 650581-35-4P 650581-36-5P 650581-37-6P
650581-38-7P 650581-39-8P 650581-40-1P 650581-41-2P 650581-42-3P
650581-43-4P 650581-44-5P 650581-45-6P 650581-46-7P 650581-47-8P
650581-48-9P 650581-49-0P 650581-50-3P 650581-51-4P 650581-52-5P
650581-53-6P 650581-54-7P 650581-55-8P 650581-56-9P 650581-57-0P
650581-58-1P 650581-59-2P 650581-60-5P 650581-61-6P 650581-62-7P
650581-63-8P 650581-64-9P 650581-65-0P 650581-66-1P 650581-67-2P
650581-68-3P 650581-69-4P 650581-70-7P 650581-71-8P 650581-72-9P
650581-73-0P 650581-74-1P 650581-75-2P 650581-76-3P 650581-77-4P
650581-78-5P 650581-79-6P 650581-80-9P 650581-81-0P 650581-82-1P
650581-83-2P 650581-84-3P 650581-85-4P 650581-86-5P 650581-87-6P
650581-88-7P 650581-89-8P 650581-90-1P 650581-91-2P 650581-92-3P
650581-93-4P 650581-94-5P 650581-95-6P 650581-96-7P 650581-97-8P
650581-98-9P 650581-99-0P 650582-00-6P 650582-01-7P 650582-02-8P
650582-03-9P 650582-04-0P 650582-05-1P 650582-06-2P 650582-07-3P
650582-08-4P 650582-09-5P 650582-10-8P 650582-11-9P 650582-12-0P
650582-13-1P 650582-14-2P 650582-15-3P 650582-16-4P 650582-17-5P
650582-18-6P 650582-19-7P 650582-20-0P 650582-21-1P 650582-22-2P
650582-23-3P 650582-24-4P 650582-25-5P 650582-26-6P 650582-27-7P
650582-28-8P 650582-29-9P 650582-30-2P 650582-31-3P 650582-32-4P
650582-33-5P 650582-34-6P 650582-35-7P 650582-36-8P 650582-37-9P
650582-38-0P 650582-39-1P 650582-40-4P 650582-41-5P 650582-42-6P
650582-43-7P 650582-44-8P 650582-45-9P 650582-46-0P 650582-47-1P
650582-48-2P 650582-49-3P 650582-50-6P 650582-51-7P 650582-52-8P
650582-53-9P 650582-54-0P 650582-55-1P 650582-56-2P 650582-57-3P
650582-58-4P 650582-59-5P 650582-60-8P 650582-61-9P 650582-62-0P
650582-63-1P 650582-64-2P 650582-65-3P 650582-66-4P 650582-67-5P
650582-68-6P 650582-69-7P 650582-70-0P 650582-71-1P 650582-72-2P
650582-73-3P 650582-74-4P 650582-75-5P 650582-76-6P 650582-77-7P
650582-78-8P 650582-79-9P 650582-80-2P 650582-81-3P 650582-82-4P
650582-83-5P 650582-84-6P 650582-85-7P 650582-86-8P 650582-87-9P
650582-88-0P 650582-89-1P 650582-90-4P 650582-91-5P 650582-92-6P
650582-93-7P 650582-94-8P 650582-95-9P 650582-96-0P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 650582-97-1P 650582-98-2P 650582-99-3P 650583-00-9P 650583-01-0P
650583-02-1P 650583-03-2P 650583-04-3P 650583-05-4P 650583-06-5P
650583-07-6P 650583-08-7P 650583-09-8P 650583-10-1P 650583-11-2P
650583-12-3P 650583-13-4P 650583-14-5P 650583-15-6P 650583-16-7P
650583-17-8P 650583-18-9P 650583-19-0P 650583-20-3P 650583-21-4P
650583-22-5P 650583-23-6P 650583-24-7P 650583-25-8P 650583-26-9P
650583-27-0P 650583-28-1P 650583-29-2P 650583-30-5P 650583-31-6P
650583-32-7P 650583-33-8P 650583-34-9P 650583-35-0P 650583-36-1P
650583-37-2P 650583-38-3P 650583-39-4P 650583-40-7P 650583-41-8P
650583-42-9P 650583-43-0P 650583-44-1P 650583-45-2P 650583-46-3P
650583-47-4P 650583-48-5P 650583-49-6P 650583-50-9P 650583-51-0P
650583-52-1P 650583-53-2P 650583-54-3P 650583-55-4P 650583-56-5P
650583-57-6P 650583-58-7P 650583-59-8P 650583-60-1P 650583-61-2P

650583-62-3P 651031-01-5P 651031-02-6P 651031-03-7P 651031-04-8P
651031-05-9P 651031-06-0P 651031-07-1P 651031-08-2P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 79079-06-4, EGFR **tyrosine kinase** 108891-60-7, FMS **receptor tyrosine kinase** 137632-09-8, ErbB2 **tyrosine kinase** 149433-91-0, **EphA2 receptor tyrosine kinase** 216974-70-8, **EphB4 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**inhibitors**; preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 65-85-0, Benzoic acid, reactions 95-76-1, 3,4-Dichloroaniline 96-32-2, Methyl bromoacetate 106-89-8, Epichlorohydrin, reactions 532-24-1, 8-Methyl-8-azabicyclo[3.2.1]octan-3-one 534-07-6, 1,3-Dichloroacetone 541-41-3, Ethyl chloridocarbonate 563-79-1, 2,3-Dimethylbut-2-ene 874-77-1 926-64-7, (Dimethylamino)acetonitrile 2133-40-6, L-Proline methyl ester hydrochloride 3943-74-6, Methyl vanillate 5807-02-3, 4-Morpholineacetonitrile 6941-54-4 13831-31-7, Acetoxyacetyl chloride 16684-31-4 23356-96-9, (S)-(+)-Prolinol 24808-23-9 35130-97-3 39684-80-5, 1,1-Dimethylethyl (2-bromoethyl)carbamate 40987-25-5, 2-(Chloromethyl)-4-(phenylmethyl)morpholine 57260-71-6, 1,1-Dimethylethyl 1-piperazinecarboxylate 76211-05-7 84358-13-4 99380-85-5 112018-06-1 139228-12-9 146231-54-1 157904-95-5 188869-05-8 193001-44-4 211053-49-5 214834-18-1 273207-59-3 650577-52-9 650577-55-2 650577-63-2 650577-78-9 650577-88-1 650577-95-0 650578-16-8 650578-27-1 650578-39-5 650578-49-7 650578-72-6 650578-82-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

IT 939-56-0P, Cyanomethyl benzoate 16888-43-0P, 4-Morpholineethanethioamide 27203-18-5P 27507-28-4P 113534-02-4P 122894-70-6P, 2-(Chloromethyl)morpholine 137499-44-6P 164926-91-4P 194151-77-4P 650577-30-3P 650577-31-4P 650577-49-4P 650577-50-7P 650577-51-8P 650577-54-1P 650577-56-3P 650577-58-5P 650577-59-6P 650577-60-9P 650577-61-0P 650577-62-1P 650577-65-4P 650577-66-5P 650577-67-6P 650577-68-7P 650577-70-1P 650577-71-2P 650577-84-7P 650577-85-8P 650577-86-9P 650577-94-9P 650577-97-2P 650577-98-3P 650577-99-4P 650578-00-0P 650578-01-1P 650578-02-2P 650578-04-4P 650578-05-5P 650578-06-6P 650578-12-4P 650578-13-5P 650578-14-6P 650578-17-9P 650578-21-5P 650578-22-6P 650578-37-3P 650578-38-4P 650578-40-8P 650578-42-0P 650578-43-1P 650578-44-2P 650578-45-3P 650578-46-4P 650578-47-5P 650578-48-6P 650578-63-5P 650578-66-8P 650578-69-1P 650578-71-5P 650578-73-7P 650578-74-8P 650578-76-0P 650578-77-1P 650578-78-2P 650578-79-3P 650578-80-6P 650578-81-7P 650579-38-7P 650579-39-8P 650579-47-8P 650579-49-0P 650579-51-4P 650579-53-6P 650579-54-7P 650579-63-8P 650579-65-0P 650579-66-1P 650579-70-7P 650579-71-8P 650579-72-9P 650579-74-1P 650579-78-5P 650579-82-1P 650579-83-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of quinazolines as **ephrin** and EGFR **receptor kinase** modulators for treating cancer and other disorders)

L40 ANSWER 11 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2004:8305** HCAPLUS
DN **140:160837**
ED Entered STN: 07 Jan 2004
TI Proto-oncogene c-Cbl promotes the degradation of **EphA2** **receptor tyrosine kinase**
AU Wang, You-jie; Li, Zhong-you; Lu, Bin; Zou, Li-jun; Zhou, Yi-kai; Sugimura, Haruhiko
CS Institute of Environmental Medicine, Tangji Medical College, Huazhong University of Science & Technology, Wuhan, 430030, Peop. Rep. China
SO Zhongguo Shengwu Huaxue Yu Fenzi Shengwu Xuebao (**2003**), 19(6), 785-790
CODEN: ZSHXF2; ISSN: 1007-7626
PB Zhongguo Shengwu Huaxue Yu Fenzi Shengwu Xuebao Bianweihui
DT Journal
LA Chinese
CC 13-2 (Mammalian Biochemistry)
AB The product of proto-oncogene c-Cbl has been proved as a new ubiquitin ligase (E3) of RING finger type for ubiquitin-proteasome pathway. Some studies reported that c-Cbl exerted the neg. regulation to **receptor tyrosine kinases** and non-**receptor tyrosine kinases** by promoting their degradation **Eph receptor** is the largest subfamily of **receptor tyrosine kinase**, but understanding of the activity regulation to this subfamily is quite poor. It has been demonstrated in our previous study that c-Cbl could neg. regulate the activity of **EphA2** with an unknown mechanism. In this communication, it was shown that c-Cbl mediated degradation of **EphA2** after it was activated by the ligand binding. It was also shown that **EphA2** was rapidly degraded in response to the ligand stimulation, and this degradation could be **blocked** by MG132, an **inhibitor** of proteasome activity. Based on this result, it was proposed that c-Cbl might serve as E3 to mediate the ubiquitination of **EphA2** and promoted its degradation in proteasome.
ST proto oncogene cCbl **EphA2 receptor tyrosine kinase** proteasome
IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(oncogene, c-Cbl; proto-oncogene c-Cbl promotes degradation of **EphA2 receptor tyrosine kinase** in proteasome after it is activated by ligand binding)
IT Human
Protein degradation
(proto-oncogene c-Cbl promotes degradation of **EphA2** **receptor tyrosine kinase** in proteasome after it is activated by ligand binding)
IT 140879-24-9, Proteasome **149433-91-0**, **EphA2** **receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(proto-oncogene c-Cbl promotes degradation of **EphA2** **receptor tyrosine kinase** in proteasome after it is activated by ligand binding)

L40 ANSWER 12 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:7663 HCAPLUS
DN 140:197154
ED Entered STN: 06 Jan 2004
TI Ligand Binding Up-Regulates **EphA2** Messenger RNA Through the Mitogen-Activated **Protein**/Extracellular Signal-Regulated **Kinase** Pathway

AU Pratt, Rebecca L.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, USA
SO Molecular Cancer Research (**2003**), 1(14), 1070-1076
CODEN: MCROC5; ISSN: 1541-7786
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB The **EphA2 receptor tyrosine kinase** is overexpressed in aggressive cancer cells, where it critically influences many aspects of malignant character. Although high levels of **EphA2** have been documented in many different cancers, relatively little is known of the mechanisms that govern **EphA2** gene expression in normal or malignant cells. Our present studies demonstrate that **EphA2** influences the regulation of its own gene expression. Specifically, ligand-mediated phosphorylation of **EphA2** transmits signals to the nucleus via extracellular signal-regulated **kinase kinases** to up-regulate de novo **EphA2** gene expression and synthesis. This mechanism governs **EphA2** expression in normal and malignant cells. In normal cells, **EphA2 protein** expression is balanced by ligand-mediated induction of **EphA2** gene expression countered by **EphA2 protein** turnover. These findings suggest that **EphA2** expression and ligand binding are intimately linked in epithelial cells. Increased understanding of this mechanism could have important implications for understanding the causes of **EphA2** overexpression and for developing new strategies for therapeutic intervention in the many cancers that overexpress **EphA2.**
ST ligand binding upregulate **EphA2** mRNA ERK **kinase** breast cancer
IT Epithelium
(**EphA2** expression and ligand binding are intimately linked in epithelial cells)
IT Gene, animal
mRNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2**; ligand binding up-regulates **EphA2** mRNA through the mitogen-activated **protein**/extracellular signal-regulated **kinase** pathway in MDA-MB-231 cell line)
IT Ligands
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(binding; ligand binding up-regulates **EphA2** mRNA through the mitogen-activated **protein**/extracellular signal-regulated **kinase** pathway in MDA-MB-231 cell line)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; In normal cells, **EphA2 protein** expression is balanced by ligand-mediated induction of **EphA2** gene expression countered by **EphA2 protein** turnover)
IT Mammary gland, neoplasm
(human MDA-MB-231 cell line; ligand binding up-regulates **EphA2** mRNA through the mitogen-activated **protein**/extracellular signal-regulated **kinase** pathway in MDA-MB-231 cell line)
IT Human
(ligand binding up-regulates **EphA2** mRNA through the mitogen-activated **protein**/extracellular signal-regulated **kinase** pathway in MDA-MB-231 cell line)

IT Cell nucleus
Signal transduction, biological
(ligand-mediated phosphorylation of **EphA2** transmits signals to the nucleus via extracellular signal-regulated **kinase kinases** to up-regulate de novo **EphA2** gene expression and synthesis)
IT Phosphorylation, biological
(**protein**; ligand-mediated phosphorylation of **EphA2** transmits signals to the nucleus via extracellular signal-regulated **kinase kinases** to up-regulate de novo **EphA2** gene expression and synthesis)
IT 142243-02-5, Extracellular signal-regulated **kinase**
149433-91-0, **EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ligand binding up-regulates **EphA2** mRNA through the mitogen-activated **protein**/extracellular signal-regulated **kinase** pathway in MDA-MB-231 cell line)
RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(3) Ben-Ze'Ev, A; Adv Exp Med Biol 1994, V358, P147 HCAPLUS
(4) Berx, G; Breast Cancer Res 2001, V3, P289 HCAPLUS
(5) Biervert, C; Neurosci Lett 2001, V315, P25 HCAPLUS
(6) Brantley, D; Oncogene 2002, V21, P7011 HCAPLUS
(7) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(8) Cheng, N; Mol Cancer Res 2002, V1, P2 HCAPLUS
(9) Cox, A; Cancer Biol Ther 2002, V1, P599 HCAPLUS
(10) Davis, S; Science 1994, V266, P816 HCAPLUS
(11) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(12) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(13) Elowe, S; Mol Cell Biol 2001, V21, P7429 HCAPLUS
(14) Hajra, K; Genes Chromosomes & Cancer 2002, V34, P255 HCAPLUS
(15) Kataoka, H; J Cancer Res Clin Oncol 2002, V128, P343 HCAPLUS
(16) Katzenellenbogen, B; Biol Reprod 1996, V54, P287 HCAPLUS
(17) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(18) Koolpe, M; J Biol Chem 2002, V277, P46974 HCAPLUS
(19) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(20) Liu, W; Cancer 2002, V94, P934 HCAPLUS
(21) Mareel, M; Physiol Rev 2003, V83, P337 HCAPLUS
(22) McCormick, F; Curr Opin Biotechnol 1996, V7, P449 HCAPLUS
(23) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(24) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(25) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(26) Ogata, H; Cancer Lett 2001, V172, P159 HCAPLUS
(27) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(28) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(29) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(30) Pandey, A; Science 1995, V268, P567 HCAPLUS
(31) Potla, L; Cancer Lett 2002, V175, P187 HCAPLUS
(32) Pratt, R; Oncogene 2002, V21, P7690 HCAPLUS
(33) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(34) Shapiro, P; Crit Rev Clin Lab Sci 2002, V39, P285 HCAPLUS
(35) Sherr, C; Cancer Cell 2002, V2, P103 HCAPLUS
(36) Tong, J; J Biol Chem 2003, V278, P6111 HCAPLUS
(37) Walker-Daniels, J; Mol Cancer Res 2002, V1, P79 HCAPLUS
(38) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(39) Yamada, K; Curr Opin Cell Biol 1997, V9, P76 HCAPLUS
(40) Zantek, N; Cell Growth & Differ 1999, V10, P629 HCAPLUS

(41) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(42) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(43) Zelinski, D; J Cell Biochem 2002, V85, P714 HCAPLUS
(44) Zschiesche, W; Anticancer Res 1997, V17, P561 MEDLINE

L40 ANSWER 13 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:4755 HCAPLUS
DN 140:143672
ED Entered STN: 05 Jan 2004
TI High-level expression of **EphA2 receptor tyrosine kinase** in prostatic intraepithelial neoplasia
AU Zeng, Guangyuan; Hu, Zhiqiang; **Kinch, Michael S.**; Pan, Chong-Xian; Flockhart, David A.; Kao, Chinghai; Gardner, Thomas A.; Zhang, Shaobo; Li, Lang; Baldridge, Lee Ann; Koch, Michael O.; Ulbright, Thomas M.; Eble, John N.; Cheng, Liang
CS Department of Pathology and Laboratory Medicine, Indiana University School of Medicine, Indianapolis, IN, USA
SO American Journal of Pathology (**2003**), 163(6), 2271-2276
CODEN: AJPAA4; ISSN: 0002-9440
PB American Society for Investigative Pathology
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB **EphA2** is a transmembrane **receptor tyrosine kinase** that is overexpressed in many carcinomas. Specific targeting of **EphA2** with monoclonal antibodies is sufficient to inhibit the growth, migration and invasiveness of aggressive cancers in animal models. Using immunohistochem. analyses, the authors measured the expression of **EphA2** in prostatic adenocarcinoma, high-grade prostatic intraepithelial neoplasia, and adjacent benign prostate tissue from 93 radical prostatectomy specimens. These results were related to multiple clin. and pathol. characteristics. The fraction of cells staining pos. with **EphA2** in benign prostatic epithelium (mean, 12%) was significantly lower than that in high-grade prostatic intraepithelial neoplasia (mean, 67%, $P < 0.001$) and prostatic adenocarcinoma (mean, 85%, $P < 0.001$). Moreover, the intensity of **EphA2** immunoreactivity in prostatic adenocarcinoma was significantly higher than in benign prostatic tissue ($P < 0.001$) or high-grade prostatic intraepithelial neoplasia ($P < 0.001$). Benign prostatic epithelium showed weak or no immunoreactivity for **EphA2** in all cases examined Whereas **EphA2** immunoreactivity related to neoplastic transformation, it did not correlate with other clin. and pathol. parameters examined These data suggest that **EphA2** levels increase as prostatic epithelial cells progress toward a more aggressive phenotype. Progressively higher levels of **EphA2** in high-grade prostatic intraepithelial neoplasia and prostatic carcinoma are consistent with recent evidence that **EphA2** functions as a powerful oncogene. Moreover, the presence of high levels of **EphA2** in these cells suggests opportunities for prostate cancer prevention and treatment.
ST **EphA2 receptor tyrosine kinase** prostate neoplastic transformation; prostate intraepithelial neoplasia **EphA2 receptor tyrosine kinase**
IT Human
(**EphA2 receptor** Tyr **kinase** overexpression in prostatic intraepithelial neoplasia)
IT Prostate gland, neoplasm
(adenocarcinoma; **EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
IT Prostate gland, disease

(benign hyperplasia; **EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
IT Hyperplasia
(benign prostatic; **EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**eck protein**; **EphA2 receptor** Tyr **kinase** overexpression in prostatic intraepithelial neoplasia)
IT Prostate gland, neoplasm
(metastasis; **EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
IT Carcinoma
(prostatic adenocarcinoma; **EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
IT **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2 receptor** Tyr **kinase** overexpression in prostatic neoplastic transformation)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(2) Bostwick, D; Urologic Surgical Pathology 1997, P343
(3) Cantley, L; Cell 1991, V64, P281 HCAPLUS
(4) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(5) Cheng, L; Am J Pathol 1996, V148, P1375 MEDLINE
(6) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(7) Fleming, I; AJCC Cancer Staging Manual 1997, P219
(8) Gleason, D; J Urol 1974, V111, P58 MEDLINE
(9) Hunter, T; Cold Spring Harb Symp Quant Biol 1992, V57, P25 HCAPLUS
(10) Hunter, T; Curr Opin Cell Biol 1989, V6, P1168
(11) Jiang, J; Am J Pathol 2002, V160, P667 HCAPLUS
(12) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(13) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(14) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(15) Kondapaka, B; Mol Cell Endocrinol 1996, V117, P53 HCAPLUS
(16) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(17) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(18) Nemoto, T; Pathobiology 1997, V65, P195 HCAPLUS
(19) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(20) Robinson, D; Proc Natl Acad Sci USA 1996, V93, P5958 HCAPLUS
(21) Schlessinger, J; Neuron 1992, V9, P383 HCAPLUS
(22) Tremblay, L; Int J Cancer 1996, V68, P164 HCAPLUS
(23) Ullrich, A; Cell 1990, V61, P203 HCAPLUS
(24) Visakorpi, T; Mod Pathol 1992, V5, P643 MEDLINE
(25) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(26) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(27) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(28) Zelinski, D; J Cell Biochem 2002, V85, P714 HCAPLUS

L40 ANSWER 14 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:982383** HCAPLUS
DN **140:75821**
ED Entered STN: 17 Dec 2003
TI **EphA2** as Target of Anticancer Immunotherapy: Identification of HLA-A*0201-Restricted Epitopes
AU Alves, Pedro M. S.; Faure, Olivier; Graff-Dubois, Stephanie; Gross, David-Alexandre; Cornet, Sebastien; Chouaib, Salem; Miconnet, Isabelle;

Lemonnier, Francois A.; Kosmatopoulos, Kostas
CS INSERM487, Institut Gustave Roussy, Villejuif, Fr.
SO Cancer Research (2003), 63(23), 8476-8480
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 15-8 (Immunochemistry)
AB **EphA2 (Eck)** is a **tyrosine kinase receptor** that is overexpressed in several human cancers such as breast, colon, lung, prostate, gastric carcinoma, and metastatic melanoma but not in nonmalignant counterparts. To validate **EphA2** as a tumor antigen recognized by CD8+ T lymphocytes, we used reverse immunol. approach to identify HLA-A*0201-restricted epitopes. Peptides bearing the HLA-A*0201-specific anchor motifs were analyzed for their capacity to bind and stabilize the HLA-A*0201 mols. Two peptides, EphA258 and EphA2550, with a high affinity for HLA-A*0201 were selected. Both peptides were immunogenic in the HLA-A*0201-transgenic HHD mice. Interestingly, peptide-specific murine CTLs cell lines responded to COS-7 cells coexpressing HLA-A*0201 and **EphA2** and to **EphA2**-pos. human tumor cells of various origin (renal cell, lung, and colon carcinoma and sarcoma). This demonstrates that EphA258 and EphA2550 are naturally processed from endogenous **EphA2**. In addition, EphA258 and EphA2550 stimulated specific CD8+ T cells from healthy donor peripheral blood mononuclear cells. These T cells recognized **EphA2**-pos. human tumor cells in an HLA-A*0201-restricted manner. Interestingly, **EphA2**-specific CD8+ T cells were detected in the peripheral blood mononuclear cells of prostate cancer patients. These results show for the first time that **EphA2** is a tumor rejection antigen and lead us to propose EphA258 and EphA2550 peptides for a broad-spectrum-tumor immunotherapy.
ST **EphA2** peptide anticancer immunotherapy
IT CD8-positive T cell
Human
MHC restriction
(**EphA2** as target of anticancer immunotherapy and identification of HLA-A*0201-restricted epitopes)
IT Immunotherapy
(**EphA2** as target of anticancer immunotherapy and identification of HLA-A*0201-restricted epitopes for)
IT Prostate gland, neoplasm
(**EphA2** as target of anticancer immunotherapy and identification of HLA-A*0201-restricted epitopes in)
IT Antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(tumor-rejection, **EphA2**; **EphA2** as target of anticancer immunotherapy and identification of HLA-A*0201-restricted epitopes)
IT 615266-60-9 615266-61-0
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** as target of anticancer immunotherapy and identification of HLA-A*0201-restricted epitopes)
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andersen, M; Cancer Res 2000, V61, P869
(2) Boon, T; Curr Opin Immunol 1997, V1997, P681
(3) Cheng, N; Mol Cancer Res 2002, V1, P2 HCAPLUS
(4) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(5) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(6) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS

(7) Espevik, T; J Immunol Methods 1986, V95, P99 HCAPLUS
(8) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(9) Holder, N; Development (Camb) 1999, V126, P2033 HCAPLUS
(10) Hsu, F; Nat Med 1996, V2, P52 HCAPLUS
(11) Jager, E; Curr Opin Immunol 2002, V14, P178 HCAPLUS
(12) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(13) Kugler, A; Nat Med 2000, V6, P332 HCAPLUS
(14) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(15) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(16) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(17) Munoz, J; J Immunol 2002, V169, P177 HCAPLUS
(18) Nemoto, T; Pathobiology 1997, V65, P195 HCAPLUS
(19) Nestle, F; Nat Med 1998, V4, P328 HCAPLUS
(20) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(21) Parham, P; Hum Immunol 1981, V3, P277 HCAPLUS
(22) Parker, K; J Immunol 1994, V152, P163 HCAPLUS
(23) Pascolo, S; J Exp Med 1997, V185, P2043 HCAPLUS
(24) Renkvist, N; Cancer Immunol Immunother 2001, V50, P3 HCAPLUS
(25) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(26) Salgaller, M; Prostate 1998, V35, P144 MEDLINE
(27) Schmitz, M; Cancer Res 2000, V60, P4845 HCAPLUS
(28) Tourdot, S; Eur J Immunol 2000, V30, P3411 HCAPLUS
(29) Vonderheide, R; Immunity 1999, V10, P673 HCAPLUS
(30) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(31) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

L40 ANSWER 15 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:950865 HCAPLUS
DN 140:13032
ED Entered STN: 07 Dec 2003
TI Low molecular weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target
IN **Kinch, Michael S.**
PA Purdue Research Foundation, USA
SO PCT Int. Appl., 81 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K038-00
ICS A61K039-00; A61K039-395; G01N033-53
CC 1-6 (Pharmacology)
Section cross-reference(s): 9, 14
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003099313	A1	20031204	WO 2003-US16269	20030522 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2486615	AA	20031204	CA 2003-2486615	20030522 <--
	EP 1505999	A1	20050216	EP 2003-734142	20030522 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				

PRAI US 2002-382988P P 20020523 <--
WO 2003-US16269 W 20030522

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003099313	ICM	A61K038-00
	ICS	A61K039-00; A61K039-395; G01N033-53
WO 2003099313	ECLA	A61K038/17A2; C12N009/16; G01N033/50D4; G01N033/574 <--

AB Low mol. weight **protein tyrosine** phosphatase (LMW-PTP) is identified as a novel diagnostic and therapeutic target in cancer diagnosis, prognosis and treatment. The invention provides diagnostic and treatment methods useful in connection with cancers expressing LMW-PTP and, optionally, **EphA2 receptor.** Also provided is a screening method that utilizes changes in the amount and/or activity of LMW-PTP to identify candidate cancer therapeutic agents that effectively target the oncoprotein **EphA2.**

ST **protein tyrosine** phosphatase cancer diagnosis therapeutic target

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT Adhesion, biological
(focal, LMW-PTP overexpression increase of; low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT Antitumor agents
Cytotoxic agents
Diagnosis
Drug interactions
Human
Neoplasm
(low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT Carcinoma
(metastasis; low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT Phosphorylation, biological
(of **EphA2 receptor tyrosines**; low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT Organelle
(stress fiber, LMW-PTP overexpression increase of; low mol. weight **protein tyrosine** phosphatase (LMW-PTP) as a diagnostic and therapeutic target for cancer and inhibition of **EphA2 receptor** in relation to conjugation with cytotoxic agents)

IT **149433-91-0, EphA2 receptor tyrosine kinase**

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(low mol. weight **protein tyrosine** phosphatase
(LMW-PTP) as a diagnostic and therapeutic target for cancer and
inhibition of **EphA2 receptor** in relation to
conjugation with cytotoxic agents)

IT 352548-19-7, Low molecular weight **protein tyrosine**
phosphatase
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); BIOL
(Biological study); USES (Uses)
(low mol. weight **protein tyrosine** phosphatase
(LMW-PTP) as a diagnostic and therapeutic target for cancer and
inhibition of **EphA2 receptor** in relation to
conjugation with cytotoxic agents)

IT 630435-42-6 630435-43-7 630435-44-8
RL: PRP (Properties)
(unclaimed nucleotide sequence; low mol. weight **protein**
tyrosine phosphatase (LMW-PTP) as a diagnostic and therapeutic
target)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andersen; US 5958957 A 1999 HCAPLUS
(2) Caselli; J Biol Chem 1998, V273(49), P32554 HCAPLUS
(3) Chiarugi; J Biol Chem March 1998, V273(12), P6776 HCAPLUS
(4) Fiaschi; J Biol Chem 2001, V276(52), P49156 HCAPLUS
(5) Stein; Genes and Develop 1998, V12(5), P667 HCAPLUS

L40 ANSWER 16 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:933787** HCAPLUS
DN **140:268478**
ED Entered STN: 01 Dec 2003
TI **EphA2** Up-regulation induced by deoxycholic acid in human colon
carcinoma cells, an involvement of extracellular signal-regulated
kinase and p53-independence
AU Li, Zhongyou; Tanaka, Masamitsu; Kataoka, Hideki; Nakamura, Ritsuko;
Sanjar, Ravshanov; Shinmura, Kazuya; Sugimura, Haruhiko
CS The First Department of Pathology, Hamamatsu University School of
Medicine, Hamamatsu, 431-3192, Japan
SO Journal of Cancer Research and Clinical Oncology (**2003**),
129(12), 703-708
CODEN: JCROD7; ISSN: 0171-5216
PB Springer-Verlag
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB Purpose: The **EphA2 receptor protein**
tyrosine kinase gene has been shown to be over-expressed
or functionally altered in a number of human tumors, including colon cancer,
but little is known about the regulation of this new oncoprotein. In
order to explore the mechanism of **EphA2** up-regulation in cancer
cells, we examined the change of expression of **EphA2** gene induced
by deoxycholic acid (DCA) and elucidated its possible pathways in human
colon cancer cells. Methods: Western blot and RT-PCR were used to assess
the **protein** expression and mRNA in several colon cancer cell
lines, which harbor various p53 status. The **inhibition** study to
interfere the MAPK pathway was performed by using various chems. and by
transfecting dominant neg. mutant plasmids. Results: Up-regulation of
EphA2 induced by DCA was observed in a dose- and time-dependent
fashion both in mRNA and **protein** levels. This regulation is
constant regardless of p53 status including wild, mutant or knocked out in
the colon cell lines used. This induction was in part **blocked**

by either erk1/2 **inhibitors** or dominant neg. mutants erk1/2 plasmids. Conclusions: These results suggest that DCA induced up-regulation of **EphA2** in colon cancer cells is due to activation of erk1/2 cascade, and is p53-independent. Taken together with the roles of **EphA2** and DCA in tumorigenesis, which have been independently reported, our observation will provide a new mechanistic basis of DCA commitment in carcinogenesis.

ST **EphA2** deoxycholate ERK **kinase** colon carcinoma

IT Human
Signal transduction, biological
Transformation, neoplastic
(**EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT p53 (**protein**)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT Transcriptional regulation
(activation; **EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT Intestine, neoplasm
(colon, carcinoma; **EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT Carcinoma
(colon; **EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; **EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT 83-44-3, Deoxycholic acid
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

IT 137632-07-6, Erk1 **kinase** 137632-08-7, Erk2 **kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** up-regulation induced by deoxycholic acid in human colon carcinoma cells, an involvement of extracellular signal-regulated **kinase** and p53-independence)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Adachi, M; Embo J 1999, V18, P5347 HCAPLUS
(2) Bunz, F; Science 1998, V282, P1497 HCAPLUS
(3) Cheng, N; Cytokine Growth Factor Rev 2002, V13, P75 HCAPLUS
(4) Crowley-Weber, C; Carcinogenesis 2002, V23, P2063 HCAPLUS
(5) Debruyne, P; Mutat Res 2001, V480/481, P359
(6) Dobashi, Y; Mol Pathol 1994, V3, P9 MEDLINE
(7) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(8) Holder, N; Development 1999, V126, P2033 HCAPLUS
(9) Lechner, S; Carcinogenesis 2002, V23, P1281 HCAPLUS
(10) Li, Z; Cancer Lett 2002, V177, P203 HCAPLUS

(11) Liu, W; Cancer 2002, V94, P934 HCAPLUS
(12) Martinez, J; Nutr Cancer 1998, V31, P111 HCAPLUS
(13) Qiao, D; Carcinogenesis 2001, V22, P35 HCAPLUS
(14) Qiao, L; Mol Biol Cell 2001, V12, P2629 HCAPLUS
(15) Robbins, D; J Biol Chem 1993, V268, P5097 HCAPLUS
(16) Robinson, M; Biochemistry 1996, V35, P5641 HCAPLUS
(17) Stephenson, S; BMC Mol Biol 2001, V2, P15 MEDLINE
(18) Walker-Daniels, J; Am J Pathol 2003, V162, P1037 HCAPLUS
(19) Walker-Daniels, J; Mol Cancer Res 2002, V1, P79 HCAPLUS
(20) Wang, Y; Biochem Biophys Res Commun 2002, V296, P214 HCAPLUS
(21) Yoon, J; Gastroenterology 2002, V122, P985 HCAPLUS
(22) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(23) Zelinski, D; J Cell Biochem 2002, V85, P714 HCAPLUS

L40 ANSWER 17 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:917659 HCAPLUS
DN 140:57464
ED Entered STN: 24 Nov 2003
TI Differential **EphA2** Epitope Display on Normal versus Malignant Cells
AU Coffman, Karen T.; Hu, Min; Carles-Kinch, Kelly; Tice, David; Donacki, Nanci; Munyon, Karyn; Kifle, Giza; Woods, Robert; **Langermann, Solomon**; **Kiener, Peter A.**; **Kinch, Michael S.**
CS **MedImmune, Inc., Gaithersburg, MD, USA**
SO Cancer Research (**2003**), 63(22), 7907-7912
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 15
AB The **EphA2 receptor tyrosine kinase** is overexpressed in many different types of human cancers where it functions as a powerful oncoprotein. Dramatic changes in the subcellular localization and function of **EphA2** have also been linked with cancer, and in particular, unstable cancer cell-cell contacts prevent **EphA2** from stably binding its ligand on the surface of adjoining cells. This change is important in light of evidence that ligand binding causes **EphA2** to transmit signals that neg. regulate tumor cell growth and invasiveness and also induce **EphA2** degradation On the basis of these properties, the authors have begun to target **EphA2** on tumor cells using agonistic antibodies, which mimic the consequences of ligand binding. In our present study, the authors show that a subset of agonistic **EphA2** antibodies selectively bind epitopes on malignant cells, which are not available on nontransformed epithelial cells. The authors also show that such epitopes arise from differential cell-cell adhesions and that the stable intercellular junctions of nontransformed epithelial cells occlude the binding site for ligand, as well as this subset of **EphA2** antibodies. Finally, the authors demonstrate that antibody targeting of **EphA2** decreases tumor cell growth as measured using xenograft tumor models and found that the mechanism of antibody action relates to **EphA2 protein** degradation in vivo. Taken together, these results suggest new opportunities for therapeutic targeting of the large number of different cancers that express **EphA2** in a manner that could minimize potential toxicities to normal cells.
ST **EphA2 receptor** epitope cancer
IT Antitumor agents
Epitopes
Human

Neoplasm
(differential **EphA2** epitope display on normal vs. malignant cells)
IT Adhesion, biological
(differential **EphA2** epitope display on normal vs. malignant cells in relation to)
IT Cell junction
(differential **EphA2** epitope display on normal vs. malignant cells in relation to stable intercellular junctions of normal cells)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; differential **EphA2** epitope display on normal vs. malignant cells)
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(2) Davis, S; Science (Wash DC) 1994, V266, P816 HCAPLUS
(3) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(4) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(5) Kinch, M; Cell Adhes Commun 1997, V4, P425 HCAPLUS
(6) Kinch, M; Clin Cancer Res 2003, V9, P613 HCAPLUS
(7) Kinch, M; Clin Exp Metastasis 2003, V20, P59 HCAPLUS
(8) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(9) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(10) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(11) Nakamoto, M; Microsc Res Tech 2002, V59, P58 HCAPLUS
(12) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(13) Walker-Daniels, J; Am J Pathol 2003, V162, P1037 HCAPLUS
(14) Walker-Daniels, J; Mol Cancer Res 2002, V1, P79 HCAPLUS
(15) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(16) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(17) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(18) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(19) Zetter, B; Semin Cancer Biol 1993, V4, P219 HCAPLUS
(20) Zschiesche, W; Anticancer Res 1997, V17, P561 MEDLINE

L40 ANSWER 18 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:912959 HCAPLUS
DN 139:394888
ED Entered STN: 21 Nov 2003
TI Anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis
IN **Kinch, Michael S.**; Carles-Kinch, Kelly; **Kiener, Peter**; **Langermann, Solomon**
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 175 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K
CC 15-3 (Immunochemistry)
Section cross-reference(s): 1, 8, 9
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003094859	A2	20031120	WO 2003-US15044	20030512 <--
	WO 2003094859	A3	20050203		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2485373 AA 20031120 CA 2003-2485373 20030512 <--
US 2004028685 A1 20040212 US 2003-436782 20030512 <--
EP 1519956 A2 20050406 EP 2003-750125 20030512 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

PRAI US 2002-379322P P 20020510 <--
US 2002-418213P P 20021014 <--
US 2003-460507P P 20030403 <--
WO 2003-US15044 W 20030512

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2003094859	ICM	A61K	
WO 2003094859	ECLA	C07K016/28H	<--
US 2004028685	NCL	424/155.100	
	ECLA	C07K016/28H	<--

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of cancer, particularly, metastatic cancer. In one embodiment, the methods of the invention comprise the administration of an effective amount of an antibody that binds to **EphA2** and agonizes **EphA2**, thereby increasing **EphA2** phosphorylation and decreasing **EphA2** levels. In other embodiments, the methods of the invention comprise the administration of an effective amount of an antibody that binds to **EphA2** and inhibits cancer cell colony formation in soft agar, inhibits tubular network formation in three-dimensional basement membrane or extracellular matrix preparation, preferentially binds to an **EphA2** epitope that is exposed on cancer cells but not non-cancer cells, and/or has a low Koff, thereby, inhibiting tumor cell growth and/or metastasis. The invention also provides pharmaceutical compns. comprising one or more **EphA2** antibodies of the invention either alone or in combination with one or more other agents useful for cancer therapy.

ST **EphA2 protein** epitope monoclonal antibody cancer metastasis therapy

IT Inflammation
(Crohn's disease; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Intestine, disease
(Crohn's; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Hybridoma
(Eph099B-102.147; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Hybridoma
(Eph099B-208.261; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Hybridoma
(Eph099B-210.248; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and

metastasis)
IT Hybridoma
(Eph099B-233.152; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)
IT Animal cell
Animal cell line
Animal tissue
Antitumor agents
Apoptosis
Asthma
Bladder, neoplasm
Blood cell
Blood serum
Carcinoma
Carcinoma
Chemotherapy
Epitopes
Extracellular matrix
Genetic vectors
Human
Imaging
Immunotherapy
Lung, neoplasm
Mammary gland, neoplasm
Melanoma
Molecular cloning
Necrosis
Pancreas, neoplasm
Phosphorylation, biological
Prognosis
Prostate gland, neoplasm
Protein sequences
Psoriasis
Radiotherapy
Skin, neoplasm
Sputum
Surgery
Urine
cDNA sequences
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)
IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)
IT Fibronectins
Ligands
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)
IT Antisense oligonucleotides
Nucleic acids
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)
IT Basement membrane

(artificial; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Needles (tools)
(aspirates; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Health products
(biologicals; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Diagnosis
(cancer; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Drug delivery systems
(carriers; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Biology
(cell, host; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Lung, disease
(chronic obstructive; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Intestine, neoplasm
(colon; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Physical properties
(consts., Koff; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT **Tyrosine kinase receptors**
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**ephrin type-A receptor 2**; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Cytometry
(flow; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fragments; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fusion products; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(heavy chain; anti-**EphA2 protein** monoclonal

antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(humanized; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Diagnosis
(immunodiagnosis; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Immunoassay
(immunofluorescence microscopy; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Intestine, disease
(inflammatory; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(light chain; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Neoplasm
(metastasis; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Antibodies and Immunoglobulins
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(monoclonal; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Disease, animal
(proliferative, hyper-; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Kidney, neoplasm
(renal cell carcinoma; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Carcinoma
(renal cell; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Artery, disease
(restenosis, smooth muscle; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Muscle, disease
(smooth, restenosis; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Hormones, animal, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

(Biological study); USES (Uses)
(therapy; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT Imaging
(tumor; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 625867-94-9P 625867-95-0P 625867-98-3P 625867-99-4P 625868-02-2P 625868-03-3P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 119978-18-6, Matrigel
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 157597-32-5 176714-45-7 384331-85-5 500757-49-3 625812-75-1 625812-76-2 625812-77-3 625812-78-4 625812-79-5 625812-80-8 625812-81-9 625812-82-0 625812-83-1 625812-84-2 625812-85-3 625812-86-4 625812-87-5 625812-88-6 625862-83-1
RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 625867-96-1P 625867-97-2P 625868-00-0P 625868-01-1P 625868-04-4P 625868-05-5P
RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(nucleotide sequence; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 9002-18-0, Agar
RL: ARU (Analytical role, unclassified); DEV (Device component use); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(soft; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

IT 625868-09-9 625868-10-2 625868-11-3 625868-12-4 625868-13-5 625868-14-6 625868-15-7 625868-16-8 625868-17-9 625868-18-0 625868-19-1 625868-20-4 625868-21-5 625868-22-6 625868-23-7 625868-24-8 625868-25-9 625868-26-0 625868-27-1
RL: PRP (Properties)
(unclaimed nucleotide sequence; anti-**EphA2 protein** monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis)

L40 ANSWER 19 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:837593** HCAPLUS
DN **139:322275**

ED Entered STN: 26 Oct 2003
TI Peptide T epitopes of the **EphA2** antigen for antitumor immunotherapy
IN Kosmatopoulos, Kostas; Alves, Pedro
PA Institut National de la Sante et de la Recherche Medicale INSERM, Fr.; Institut Gustave Roussy
SO Fr. Demande, 22 pp.
CODEN: FRXXBL
DT Patent
LA French
IC ICM C07K007-06
ICS C12N015-12; A61K039-00; A61K048-00; A61K031-7105; A61K031-711; A61P035-00; A61P037-04
CC 15-2 (Immunochemistry)
Section cross-reference(s): 1
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI FR 2838742	A1	20031024	FR 2002-5048	20020423	<--
FR 2838742	B1	20040709			
CA 2482930	AA	20031106	CA 2003-2482930	20030423	<--
WO 2003091383	A2	20031106	WO 2003-FR1280	20030423	<--
WO 2003091383	A3	20040401			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
EP 1497417	A2	20050119	EP 2003-740654	20030423	<--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
PRAI FR 2002-5048	A	20020423	<--		
WO 2003-FR1280	W	20030423			

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
FR 2838742	ICM	C07K007-06	
	ICS	C12N015-12; A61K039-00; A61K048-00; A61K031-7105; A61K031-711; A61P035-00; A61P037-04	
FR 2838742	ECLA	C07K014/715	<--
WO 2003091383	ECLA	C07K014/715	<--

AB The invention discloses peptides constituting **EphA2** antigen T epitopes, presented by MHC I. The peptides are useful in particular for antitumor immunotherapy.

ST antitumor immunotherapy peptide T epitope **EphA2** antigen
IT Lung, neoplasm
(1355 cell; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(HLA-A, HLA-A*0201; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Prostate gland, neoplasm
(LNCaP and DU145 cells; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)

IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MHC (major histocompatibility complex), class I; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Sarcoma
(SAOS cell; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Intestine, neoplasm
(colon, Caco-2 cell; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT T cell (lymphocyte)
(cytotoxic; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin type-A receptor 2**; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Drug delivery systems
Epitopes
Human
Immunotherapy
(peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Fusion **proteins** (chimeric **proteins**)
Peptides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Polynucleotides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptide-encoding; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Kidney, neoplasm
(renal cell carcinoma; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Carcinoma
(renal cell; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Vaccines
(tumor; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT Antitumor agents
(vaccines; peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
IT 615266-60-9 615266-61-0
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peptide T epitopes of **EphA2** antigen for antitumor immunotherapy)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Hiroaki, H; JOURNAL OF BIOMOLECULAR NMR 1996, V8(2), P105 HCAPLUS
(2) Lindberg, R; MOLECULAR AND CELLULAR BIOLOGY 1990, V10(12), P6316 HCAPLUS
(3) Ye, J; US 6323016 B1 2001 HCAPLUS
(4) Ye, J; US 2002025570 A1 2002 HCAPLUS

L40 ANSWER 20 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:613807 HCAPLUS
DN 139:275676

ED Entered STN: 11 Aug 2003
TI Disease Stage Variation in CD4+ and CD8+ T-Cell Reactivity to the **Receptor Tyrosine Kinase EphA2** in Patients with Renal Cell Carcinoma
AU Tatsumi, Tomohide; Herrem, Christopher J.; Olson, Walter C.; Finke, James H.; Bukowski, Ronald M.; **Kinch, Michael S.**; Ranieri, Elena; Storkus, Walter J.
CS Departments of Surgery and Immunology, University of Pittsburgh School of Medicine, Pittsburgh, PA, 15213, USA
SO Cancer Research (2003), 63(15), 4481-4489
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 15-10 (Immunochemistry)
Section cross-reference(s): 14
AB The authors have evaluated CD8+ and CD4+ T-cell responses against a new tumor-associated antigen, the **receptor tyrosine kinase EphA2**, which is broadly expressed in diverse cancer histologies and is frequently overexpressed in advanced stage/metastatic disease. They report herein that **EphA2** is overexpressed in renal cell carcinoma (RCC) cell lines and clin. specimens of RCC, and find that the highest levels of **EphA2** are consistently found in the most advanced stages of the disease. The authors identified and synthesized 5 putative HLA class I-binding and 3 class II-binding peptides derived from **EphA2** that might serve as targets for immune reactivity. Each peptide induced specific, tumor-reactive CD8+ or CD4+T-cell responses as measured using IFN-γ enzyme-linked immunospot assays. The **EphA2** peptides elicited relatively weak responses from CD8+ T cells derived from normal healthy volunteers or from RCC patients with active disease. In marked contrast, immune reactivity to **EphA2**-derived epitopes was greatly enhanced in CD8+ T cells that had been isolated from patients who were rendered disease-free, after surgery. Furthermore, enzyme-linked immunospot analyses demonstrated prominent **EphA2**-restricted T-helper 1-type CD4+ T cell activity in patients with early stage disease, whereas T-helper 2-type and T regulatory-type responses predominated in patients with more advanced forms of RCC. Thus, the immune system of cancer patients actively monitors **EphA2**-derived epitopes, and the magnitude and character of T-cell responses to **EphA2** epitopes may convey much-needed predictive information about disease stage and outcome.
ST T cell **receptor tyrosine kinase EphA2** kidney carcinoma prognosis
IT CD4-positive T cell
CD8-positive T cell
Epitopes
Human
(disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
IT Tumor antigens
Tumor antigens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
IT Prognosis
(disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase**

EphA2 in patients with renal cell carcinoma in relation to)
IT Kidney, neoplasm
(renal cell carcinoma; disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
IT Carcinoma
(renal cell; disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
IT 604797-13-9 604797-14-0 604797-15-1 604797-16-2 604797-17-3
604797-18-4 604797-19-5 604797-20-8
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(disease stage variation in CD4+ and CD8+ T-cell reactivity to tumor antigen **receptor tyrosine kinase EphA2** in patients with renal cell carcinoma)
RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bittner, M; Nature (Lond) 2000, V406, P536 HCAPLUS
(2) Boel, P; Immunity 1995, V2, P167 HCAPLUS
(3) Boon, T; Curr Opin Immunol 1997, V9, P681 HCAPLUS
(4) Boon, T; J Exp Med 1996, V183, P725 HCAPLUS
(5) Brichard, V; J Exp Med 1993, V178, P489 HCAPLUS
(6) Chaux, P; J Exp Med 1999, V189, P767 HCAPLUS
(7) Cheever, M; Immunol Rev 1995, V145, P33 HCAPLUS
(8) Chen, Y; Proc Natl Acad Sci USA 1997, V94, P1914 HCAPLUS
(9) Coulie, P; Proc Natl Acad Sci USA 2001, V98, P10290 HCAPLUS
(10) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(11) D'Amico, T; Ann Thorac Surg 2001, V72, P1144 MEDLINE
(12) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(13) Easty, D; Int J Cancer 1999, V84, P494 HCAPLUS
(14) Elsasser-Beile, U; Tumor Biol 1998, V19, P470 HCAPLUS
(15) Eph Nomenclature Committee; Cell 1997, V90, P403
(16) Finke, J; J Immunother Emphas Tumor Immunol 1994, V15, P91 HCAPLUS
(17) Gnjatic, S; J Immunol 1998, V160, P328 HCAPLUS
(18) Honeyman, M; Nat Biotechnol 1998, V16, P966 HCAPLUS
(19) Jager, E; J Exp Med 2000, V191, P625 HCAPLUS
(20) Jager, E; Proc Natl Acad Sci USA 2000, V97, P12198 HCAPLUS
(21) Kawakami, Y; J Immunol 1995, V154, P3961 HCAPLUS
(22) Kawakami, Y; Proc Natl Acad Sci USA 1994, V91, P3515 HCAPLUS
(23) Keilholz, U; J Immunother 2002, V25, P97
(24) Kiessling, R; Cancer Immunol Immunother 1999, V48, P353 HCAPLUS
(25) Knoll, B; Development 2000, V128, P895
(26) Kolbeck, P; Mod Pathol 1992, V5, P420 MEDLINE
(27) Krause, I; Crit Rev Immunol 2000, V20, P1 HCAPLUS
(28) Levings, M; J Exp Med 2002, V196, P1335 HCAPLUS
(29) Liu, H; J Immunol 2002, V168, P3477 HCAPLUS
(30) Maeurer, M; Cancer Immunol Immunother 1995, V41, P111 HCAPLUS
(31) Mellitzer, G; Curr Opin Neurobiol 2000, V10, P400 HCAPLUS
(32) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(33) Miyazaki, T; Int J Cancer 2003, V103, P657 HCAPLUS
(34) Moser, J; Viral Immunol 2001, V14, P199 HCAPLUS
(35) Nestle, F; Nat Med 1998, V4, P328 HCAPLUS
(36) Oba, S; Cancer Lett 2001, V164, P97 HCAPLUS

(37) Ogawa, K; Oncogene 2003, V19, P6043
(38) Pardoll, D; Curr Opin Immunol 1998, V10, P588 HCAPLUS
(39) Pieper, R; J Exp Med 1999, V189, P757 HCAPLUS
(40) Ryan, M; Kidney Int 1994, V45, P48 MEDLINE
(41) Southwood, S; J Immunol 1998, V160, P3363 HCAPLUS
(42) Tatsumi, T; J Exp Med 2002, V196, P619 HCAPLUS
(43) Toes, R; J Exp Med 1999, V189, P753 HCAPLUS
(44) Topalian, S; J Exp Med 1996, V183, P1965 HCAPLUS
(45) Topalian, S; Proc Natl Acad Sci USA 1994, V91, P9461 HCAPLUS
(46) Van den Eynde, B; J Exp Med 1995, V182, P689 HCAPLUS
(47) Van den Hove, L; Clin Exp Immunol 1997, V109, P501 MEDLINE
(48) Vieira, P; J Immunol 2000, V164, P4507 HCAPLUS
(49) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(50) Wang, R; Science (Wash DC) 1999, V284, P1351 HCAPLUS
(51) Willkinson, D; Nat Rev Neurosci 2001, V2, P155
(52) Wolfel, T; Science (Wash DC) 1995, V269, P1281 MEDLINE
(53) Yu, J; Cancer Res 2001, V61, P842 HCAPLUS
(54) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(55) Zarour, H; Cancer Res 2000, V60, P4946 HCAPLUS
(56) Zarour, H; Proc Natl Acad Sci USA 2000, V97, P400 HCAPLUS

L40 ANSWER 21 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:463217 HCAPLUS
DN 139:177781
ED Entered STN: 17 Jun 2003
TI **EphA2** Overexpression Decreases Estrogen Dependence and Tamoxifen Sensitivity
AU Lu, Ming; Miller, Kathy D.; Gokmen-Polar, Yesim; Jeng, Meei-Huey; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, 47907, USA
SO Cancer Research (**2003**), 63(12), 3425-3429
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB The **EphA2 receptor tyrosine kinase** is found at low levels on non-transformed adult breast epithelial cells but is frequently overexpressed on aggressive breast cancer cells. Recent studies have documented an inverse relationship between **EphA2** and estrogen **receptor** expression in breast cancer cell lines. In our present study, we demonstrate that overexpression of **EphA2** decreases estrogen dependence as defined using both in vitro and in vivo criteria. The **EphA2**-transfected cells demonstrate increased growth in vitro and form larger and more aggressive tumors in vivo. **EphA2** overexpression also decreases the ability of tamoxifen to inhibit breast cancer cell growth and tumorigenesis. These effects of **EphA2** overexpression can be overcome by antibody-based targeting of **EphA2**. In particular, certain **EphA2** antibodies can resensitize **EphA2**-overexpressing breast tumor cells to tamoxifen. These results have important implications for understanding the mol. basis underlying estrogen dependence and provide further evidence that **EphA2** may provide a much-needed therapeutic target for breast cancer.
ST overexpression **EphA2** decrease estrogen dependence tamoxifen sensitivity breast cancer
IT Transformation, neoplastic
(**EphA2** overexpression also decreases the ability of tamoxifen

to inhibit breast cancer cell growth and tumorigenesis)
IT Human
(**EphA2** overexpression decreases estrogen dependence and tamoxifen sensitivity in human MCF-7 cell line)
IT Estrogens
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** overexpression decreases estrogen dependence and tamoxifen sensitivity in human MCF-7 cell line)
IT Estrogen **receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Recent studies have documented an inverse relationship between **EphA2** and estrogen **receptor** expression in breast cancer cell lines)
IT Mammary gland
(epithelium; **EphA2 receptor tyrosine kinase** is found at low levels on non-transformed adult breast epithelial cells but is frequently overexpressed on aggressive breast cancer cells)
IT Mammary gland, neoplasm
(human breast carcinoma MCF-7 cell line; **EphA2** overexpression decreases estrogen dependence and tamoxifen sensitivity in human MCF-7 cell line)
IT Cell proliferation
(inhibition; **EphA2** overexpression also decreases the ability of tamoxifen to inhibit breast cancer cell growth and tumorigenesis)
IT Epithelium
(mammary; **EphA2 receptor tyrosine kinase** is found at low levels on non-transformed adult breast epithelial cells but is frequently overexpressed on aggressive breast cancer cells)
IT Drug targets
(these results provide further evidence that **EphA2** may provide a much-needed therapeutic target for breast cancer)
IT 10540-29-1, Tamoxifen **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** overexpression decreases estrogen dependence and tamoxifen sensitivity in human MCF-7 cell line)
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(3) Dickson, R; Endocr Rev 1995, V16, P559 HCAPLUS
(4) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(5) Hulka, B; Cancer (Phila) 1994, V74, P1111 MEDLINE
(6) Katzenellenbogen, B; Biol Reprod 1996, V54, P287 HCAPLUS
(7) Katzenellenbogen, B; J Steroid Biochem Mol Biol 2000, V74, P279 HCAPLUS
(8) Landis, S; CA Cancer J Clin 2001, V49, P8
(9) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(10) MacGregor, J; Pharmacol Rev 1998, V50, P151 HCAPLUS
(11) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(12) Nakshatri, H; Mol Cell Biol 1997, V17, P3629 HCAPLUS
(13) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(14) Price, J; Breast Cancer Res Treat 1996, V39, P93 MEDLINE
(15) Rochefort, H; CIBA Found Symp 1995, V191, P254 HCAPLUS
(16) Woodhouse, E; Cancer (Phila) 1997, V80, P1529 MEDLINE
(17) Zajchowski, D; Cancer Res 1993, V53, P5004 HCAPLUS
(18) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(19) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(20) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

(21) Zelinski, D; J Cell Biochem 2002, V85, P714 HCAPLUS

L40 ANSWER 22 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:303553 HCAPLUS
DN 139:50696
ED Entered STN: 21 Apr 2003
TI Differential regulation of **EphA2** in normal and malignant cells
AU Walker-Daniels, Jennifer; Hess, Angela R.; Hendrix, Mary J. C.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, USA
SO American Journal of Pathology (**2003**), 162(4), 1037-1042
CODEN: AJPAA4; ISSN: 0002-9440
PB American Society for Investigative Pathology
DT Journal; General Review
LA English
CC 14-0 (Mammalian Pathological Biochemistry)
AB A review on the biochem. and cellular consequences of **EphA2** stimulation, especially in malignant cells. The mechanisms that may explain the overexpression and functional alterations of **EphA2** in cancer are discussed. A hypothetical model representing a potential signaling pathway initiated by **EphA2** and critical for vasculogenic mimicry is also presented.
ST review **EphA2 receptor tyrosine kinase** signaling cancer
IT Neoplasm
Signal transduction, biological
(differential regulation of **EphA2** in cancer)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(differential regulation of **EphA2** in cancer)
RE.CNT 74 THERE ARE 74 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(3) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(4) Belsches-Jablonski, A; Oncogene 2001, V20, P1465 HCAPLUS
(5) Binnis, K; Mol Cell Biol 2000, V20, P4791
(6) Birchmeier, W; Curr Top Microbiol Immunol 1996, V213, P117 HCAPLUS
(7) Biscardi, J; Mol Carcinog 1998, V21, P261 HCAPLUS
(8) Bruckner, K; Curr Opin Neurobiol 1998, V8, P375 HCAPLUS
(9) Carles-Kinch, K; Cancer Res 2001, V62, P2840
(10) Carpenter, G; Bioessays 2000, V22, P697 HCAPLUS
(11) Ciossek, T; Eur J Neurosci 1998, V10, P1574 MEDLINE
(12) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(13) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(14) Drescher, U; Curr Opin Neurobiol 1997, V7, P75 HCAPLUS
(15) D'Amico, T; Ann Thorac Surg 2001, V72, P1144 MEDLINE
(16) Easty, D; Melanoma Res 2000, V10, P401 HCAPLUS
(17) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(18) Flanagan, J; Cell 1997, V90, P403 HCAPLUS
(19) Folkman, J; EXS 1997, V79, P1 MEDLINE
(20) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(21) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(22) Ganju, P; Oncogene 1994, V9, P1613 HCAPLUS
(23) Geiger, B; Cold Spring Harb Symp Quant Biol 1992, V57, P631 HCAPLUS
(24) Greene, M; Cancer 1999, V86, P2464 MEDLINE
(25) Hainaut, P; Adv Cancer Res 2000, V77, P81 HCAPLUS

(26) Hendrix, M; Cancer Res 2002, V62, P665 HCAPLUS
(27) Hendrix, M; Proc Natl Acad Sci USA 2001, V98, P8018 HCAPLUS
(28) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(29) Hess, A; Proc Am Assoc Cancer Res 2002, V43, P36
(30) Himanen, J; Nature 1998, V396, P486 HCAPLUS
(31) Hock, B; Oncogene 1998, V17, P255 HCAPLUS
(32) Hock, B; Proc Natl Acad Sci USA 1998, V95, P9779 HCAPLUS
(33) Holland, S; Curr Opin Neurobiol 1998, V8, P117 HCAPLUS
(34) Igney, F; Nature Rev, Cancer 2002, V2, P277 HCAPLUS
(35) Joazeiro, C; Science 1999, V286, P309 HCAPLUS
(36) Kikawa, K; J Biol Chem 2002, V277, P39274 HCAPLUS
(37) Kinch, M; Biochem Soc Trans 1995, V23, P446 HCAPLUS
(38) Klapper, L; Cancer Res 2000, V60, P3384 HCAPLUS
(39) Koolpe, M; J Biol Chem 2002, V277, P46974 HCAPLUS
(40) Labrador, J; EMBO J 1997, V16, P3889 HCAPLUS
(41) Lackmann, M; J Biol Chem 1998, V273, P20228 HCAPLUS
(42) Levkowitz, G; Genes Dev 1998, V12, P3663 HCAPLUS
(43) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(44) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(45) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(46) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(47) Nelson, M; Surg Clin N Am 1996, V76, P1257 MEDLINE
(48) Nwosu, V; Hum Mol Genet 2001, V10, P2313 HCAPLUS
(49) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(50) Orioli, D; Trends Genet 1997, V13, P354 HCAPLUS
(51) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(52) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(53) Pandey, A; Science 1995, V268, P567 HCAPLUS
(54) Pejovic, T; Ann Med 1995, V27, P73 MEDLINE
(55) Pratt, R; Oncogene 2002, V21, P7690 HCAPLUS
(56) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(57) Seftor, E; Clin Exp Metastasis 2002, V19, P233 HCAPLUS
(58) Shirakawa, K; Cancer Res 2002, V62, P560 HCAPLUS
(59) Shirakawa, K; Int J Cancer 2002, V99, P821 HCAPLUS
(60) Stapleton, D; Nat Struct Biol 1999, V6, P44 HCAPLUS
(61) Sulman, E; Genomics 1997, V40, P371 HCAPLUS
(62) Thanos, C; Science 1999, V283, P833 HCAPLUS
(63) Vousden, K; Biochim Biophys Acta 2002, V1602, P47 HCAPLUS
(64) Walker-Daniels, J; Mol Cancer Res 2002, V1, P79 HCAPLUS
(65) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(66) Waterman, H; EMBO J 2002, V21, P303 HCAPLUS
(67) Wong, A; Proc Natl Acad Sci USA 2002, V99, P6684 HCAPLUS
(68) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(69) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(70) Zantek, N; J Cell Physiol 2001
(71) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(72) Zetter, B; Semin Cancer Biol 1993, V4, P219 HCAPLUS
(73) Zhou, R; Pharmacol Ther 1998, V77, P151 HCAPLUS
(74) Zisch, A; Cell Tissue Res 1997, V290, P217 HCAPLUS

L40 ANSWER 23 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:141172 HCAPLUS
DN 139:82846
ED Entered STN: 25 Feb 2003
TI Overexpression and functional alterations of the **EphA2 tyrosine kinase** in cancer
AU **Kinch, Michael S.**; Carles-Kinch, Kelly
CS **MedImmune, Inc., Gaithersburg, MD, USA**
SO Clinical & Experimental Metastasis (**2003**), 20(1), 59-68
CODEN: CEXMD2; ISSN: 0262-0898

PB Kluwer Academic Publishers
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB Cancer is a disease of aberrant signal transduction. The expression and function of intracellular signaling pathways are frequently subverted as cells progress towards a metastatic phenotype. In particular, **tyrosine kinases** initiate powerful signals that govern many different aspects of cell behavior. In Recent studies have demonstrated that the **EphA2 receptor tyrosine kinase** is frequently overexpressed and functionally altered in aggressive tumor cells, and that these changes promote metastatic character. Herein, we provide an overview of our current understanding of **EphA2**, with emphasis upon the differential regulation of **EphA2** expression and function. We also show that differential **EphA2** expression and function may provide a unique opportunity for selective therapeutic targeting of **EphA2** in metastatic disease.
ST **EphA2 receptor tyrosine kinase** intracellular signaling cancer
IT Neoplasm
Second messenger system
Signal transduction, biological
(overexpression and functional alterations of **EphA2 tyrosine kinase** in cancer)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(overexpression and functional alterations of **EphA2 tyrosine kinase** in cancer)
RE.CNT 92 THERE ARE 92 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(3) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(4) Berclaz, G; Biochem Biophys Res Commun 1996, V226, P869 HCAPLUS
(5) Birchmeier, C; Acta Anatomica 1996, V156, P217 MEDLINE
(6) Birchmeier, W; Curr Top Microbiol Immunol 1996, V213, P117 HCAPLUS
(7) Bissell, M; Am J Pathol 1999, V155, P675 MEDLINE
(8) Blume-Jensen, P; Nature 2001, V411, P355 HCAPLUS
(9) Bovenkamp, D; Dev Dynam 1997, V209, P166 HCAPLUS
(10) Carles-Kinch, K; Cancer Res 2001, V62, P2840
(11) Carter, P; Nat Rev Cancer 2001, V1, P118 HCAPLUS
(12) Cates, C; Cancer Lett 1996, V110, P49 HCAPLUS
(13) Chen, J; J Biol Chem 1998, V273, P24670 HCAPLUS
(14) Chen, J; Oncogene 1996, V12, P979 HCAPLUS
(15) Clark, E; J Cell Biol 1998, V142, P573 HCAPLUS
(16) Connor, R; Dev Biol 1998, V193, P21 HCAPLUS
(17) Davis, S; Science 1994, V266, P816 HCAPLUS
(18) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(19) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(20) Easty, D; Cancer Res 2000, V55, P2528
(21) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(22) Easty, D; Melanoma Res 2000, V10, P401 HCAPLUS
(23) Fagotto, F; Dev Biol 1996, V180, P445 HCAPLUS
(24) Fidler, I; Cancer:Principles and Practice of Oncology, 5th ed 1997, P135
(25) Flanagan, J; Cell 1997, V90, P403 HCAPLUS
(26) Folkman, J; EXS 1997, V79, P1 MEDLINE
(27) Frisch, S; Curr Opin Cell Biol 1997, V9, P701 HCAPLUS
(28) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(29) Gale, N; Neuron 1996, V17, P9 HCAPLUS

(30) Ganju, P; Oncogene 1994, V9, P1613 HCAPLUS
(31) Geiger, B; Annu Rev Cell Biol 1992, V8, P307 HCAPLUS
(32) Giancotti, F; Science 1999, V285, P1028 HCAPLUS
(33) Helbling, P; Mech Dev 1998, V78, P63 HCAPLUS
(34) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(35) Holland, S; Curr Opin Neurobiol 1998, V8, P117 HCAPLUS
(36) Hunter, T; Cold Spring Harbor Symp Quant Biol 1992, V57, P25 HCAPLUS
(37) Hunter, T; Phil Trans R Soc London Ser B Biol Sci 1998, V353, P583 HCAPLUS
(38) Jove, J; Annu Rev Cell Biol 1987, V3, P31
(39) Kinch, M; Biochem Soc Trans 1995, V23, P446 HCAPLUS
(40) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(41) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(42) Lawrence, J; World J Urol 1996, V14, P124 MEDLINE
(43) Lemke, G; Mol Cell Neurosci 1997, V9, P331 HCAPLUS
(44) Lickliter, J; PNAS 1996, V93, P145 HCAPLUS
(45) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(46) Magal, E; J Neurosci Res 1996, V43, P735 HCAPLUS
(47) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(48) Marcus, R; Dev Biol 1996, V180, P786 HCAPLUS
(49) McCawley, L; Mol Med Today 2000, V6, P149 HCAPLUS
(50) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(51) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(52) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(53) Mori, T; Brain Res 1995, V29, P325 HCAPLUS
(54) Naruse-Nakajima, C; Mech Dev 2001, V102, P95 HCAPLUS
(55) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(56) Orioli, D; Trends Genet 1997, V13, P354 HCAPLUS
(57) Orsulic, S; J Cell Sci 2000, V113, P1793 HCAPLUS
(58) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(59) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(60) Pandey, A; Science 1995, V268, P567 HCAPLUS
(61) Parise, L; Semin Cancer Biol 2000, V10, P407 HCAPLUS
(62) Parsons, J; Oncogene 2000, V19, P5606 HCAPLUS
(63) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(64) Patstone, G; Growth Factors 1993, V9, P243 MEDLINE
(65) Pawson, T; Nature 1995, V373, P573 HCAPLUS
(66) Pawson, T; Science 1997, V278, P2075 HCAPLUS
(67) Potla, L; Cancer Lett 2002, V175, P187 HCAPLUS
(68) Pratt, R; Oncogene, In Press 2002
(69) Price, J; In Vivo 1994, V8, P145 MEDLINE
(70) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(71) Ruoslahti, E; Adv Cancer Res 1999, V76, P1 HCAPLUS
(72) Ruoslahti, E; Sci Am 1996, V275, P72 HCAPLUS
(73) Schoenwaelder, S; Curr Opin Cell Biol 1999, V11, P274 HCAPLUS
(74) Sefton, M; Dev Biol 1997, V188, P363 HCAPLUS
(75) Shao, H; J Biol Chem 1995, V270, P5636 HCAPLUS
(76) Sternlicht, M; Annu Rev Cell Dev Biol 2001, V17, P463 HCAPLUS
(77) Tessier-Lavigne, M; Cell 1995, V82, P345 HCAPLUS
(78) van der Geer, P; Trends Biochem Sci 1995, V20, P277 HCAPLUS
(79) Vleminckx, K; Bioessays 1999, V21, P211 MEDLINE
(80) Volberg, T; EMBO J 1992, V11, P1733 HCAPLUS
(81) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(82) Wang, H; Neuron 1997, V18, P383 HCAPLUS
(83) Weinstein, D; Mech Dev 1996, V57, P133 HCAPLUS
(84) Welch, D; Breast Cancer Res 2000, V2, P408 HCAPLUS
(85) Wieser, R; Environ Health Perspect 1990, V88, P251 MEDLINE
(86) Yamada, K; Curr Opin Cell Biol 1997, V9, P76 HCAPLUS
(87) Yap, A; Ann Rev Cell Dev Biol 1997, V13, P119 HCAPLUS
(88) Zantek, N; Cell Growth Differentiation 1999, V10, P629 HCAPLUS
(89) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS

(90) Zantek, N; J Cell Physiol 2001
(91) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(92) Zetter, B; Semin Cancer Biol 1993, V4, P219 HCAPLUS

L40 ANSWER 24 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:106711 HCAPLUS
DN 138:335310
ED Entered STN: 11 Feb 2003
TI Predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival
AU **Kinch, Michael S.**; Moore, Mary-Beth; Harpole, David H., Jr.
CS **MedImmune, Inc., Gaithersburg, MD, 20878, USA**
SO Clinical Cancer Research (**2003**), 9(2), 613-618
CODEN: CCREF4; ISSN: 1078-0432
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB PURPOSE: Underestimation of disease severity is a major problem confronting the successful clin. management of non-small cell lung cancer. Recent advances in mol. biol. substaging may provide an opportunity to identify those patients with the most aggressive forms of the disease, but there is a continuing need for accurate markers of disease relapse and survival. Exptl. Design: In the authors' present study, immunohistochem. analyses of a retrospective database of pathol. specimens were used to demonstrate that the **EphA2 receptor kinase** is frequently overexpressed in NSCLC. RESULTS: Initial presentation with high levels of **EphA2** predicts subsequent survival, overall relapse, and site of relapse. Specifically, high levels of **EphA2** in the primary tumor predict brain metastases, whereas low levels of **EphA2** relate to disease-free survival or contralateral lung metastasis. CONCLUSIONS: These data suggest that **EphA2** may provide a mol. marker to identify and predict patients who have isolated brain metastases. Moreover, the high levels of **EphA2** in lung cancer may provide an opportunity for therapeutic targeting.
ST lung cancer **EphA2 receptor tyrosine kinase**
IT Brain, neoplasm
Lung, neoplasm
(metastasis; predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival)
IT Lung, neoplasm
(non-small-cell carcinoma; predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival)
IT Human
(predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival)
IT Carcinoma
(pulmonary non-small-cell; predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(predictive value of the **EphA2 receptor tyrosine kinase** in lung cancer recurrence and survival)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(3) Carles-Kinch, K; Cancer Res 2001, V62, P2840
(4) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(5) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(6) D'Amico, T; Ann Thorac Surg 2001, V72, P1144 MEDLINE
(7) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(8) Easty, D; Melanoma Res 2000, V10, P401 HCAPLUS
(9) Figlin, R; N Engl J Med 1988, V318, P1300 MEDLINE
(10) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(11) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(12) Landis, S; CA - Cancer J Clin 1999, V49, P8 MEDLINE
(13) Lau, C; Chest Surg Clin N Am 2000, V10, P781 MEDLINE
(14) Lopez-Encuentra, A; Lung Cancer 2000, V29, P79 MEDLINE
(15) Magilligan, D; Ann Thorac Surg 1986, V42, P360
(16) Mountain, C; Chest Surg Clin N Am 2000, V10, P83 MEDLINE
(17) Mountain, C; Semin Surg Oncol 2000, V18, P106 MEDLINE
(18) Nesbitt, J; Ann Thorac Surg 1995, V60, P466 MEDLINE
(19) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(20) Pandey, A; Curr Biol 1995, V5, P986 HCAPLUS
(21) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(22) Sidransky, D; Nat Rev Cancer 2002, V2, P210 HCAPLUS
(23) Thomas, P; Ann Thorac Surg 1990, V49, P242 MEDLINE
(24) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(25) Wiest, J; J Cell Biochem Suppl 1997, V28-29, P64 MEDLINE
(26) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(27) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(28) Zantek, N; J Cell Physiol 2001, V85, P714
(29) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

L40 ANSWER 25 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2003:61644** HCAPLUS
DN **138:252693**
ED Entered STN: 27 Jan 2003
TI **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma
AU Miyazaki, Tatsuya; Kato, Hiroyuki; Fukuchi, Minoru; Nakajima, Masanobu; Kuwano, Hiroyuki
CS Department of Surgery I, Gunma University Faculty of Medicine, Gunma, 371-8511, Japan
SO International Journal of Cancer (**2003**), 103(5), 657-663
CODEN: IJCNAW; ISSN: 0020-7136
PB Wiley-Liss, Inc.
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB **EphA2** is a member of the **Eph** family of **receptor tyrosine kinases**, which interact with cell-bound ligands known as **ephrins**. **EphA2** expression was investigated by immunohistochem. with an anti-**EphA2** monoclonal antibody in 80 patients with esophageal squamous cell carcinoma (ESCC) who had undergone surgery. **EphA2** overexpression was pos. in 40 of the 80 patients (50%). A significant correlation was observed between **EphA2** expression and regional lymph node metastasis (p=0.023), number of lymph node metastases (p=0.011) and poor degree of tumor differentiation (p=0.004). The survival rates of **EphA2**-pos. patients were poorer than those of **EphA2**-neg. patients (p=0.014). The 5-yr survival rate of patients without **EphA2**

overexpression was 68%, whereas that of patients with **EphA2** overexpression was 29%. **EphA2** expression was also investigated in 7 ESCC cell lines (TE-1, -2, -8, -13, -15, TT and TTn) and 1 immortalized human esophageal keratinocyte cell line (CHEK-1). Western blotting revealed different levels of **EphA2** expression in the 8 cell lines. **EphA2** was expressed at a high level in the ESCC cell lines compared to CHEK-1. **EphA2** phosphorylation was demonstrated in all cell lines. Northern blot anal. showed that **EphA2** mRNA expression in TE-1 was greater than that in the other ESCC cell lines. The observation of small gaps on Western blot anal. of the ESCC cell lines suggests that there may be a mechanism for **EphA2** regulation at the point of translation. In conclusion, **EphA2** overexpression appears to be related to poor degree of tumor differentiation and lymph node metastasis in ESCC. Consequently, patients with **EphA2** overexpression have a poorer prognosis than those without. **EphA2** is a potential target to **prevent** ESCC cells spreading into the lymphatic drainage.

ST **EphA2** esophagus carcinoma prognosis

IT Human
Prognosis
(**EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

IT **Proteins**
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**, A2; **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

IT Carcinoma
(esophageal squamous cell; **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

IT Phosphorylation, biological
(**receptor**, of **EphA2**; **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

IT Esophagus, neoplasm
(squamous cell carcinoma; **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Altorki, N; Ann Surg 2001, V234, P581 MEDLINE
(2) Ando, N; J Thorac Cardiovasc Surg 1997, V114, P205 MEDLINE
(3) Berrino, F; Survival of cancer patients in Europe-the Eurocare Study 1995
(4) Carter, N; Nat Cell Biol 2002, V4, P565 HCAPLUS
(5) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(6) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(7) Frisen, J; EMBO J 1999, V18, P5159 HCAPLUS
(8) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(9) Kopreski, M; Anticancer Res 1996, V16, P3037 MEDLINE
(10) Kuwano, H; Hepato-gastroenterol 1997, V44, P170 MEDLINE
(11) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(12) Mellitzer, G; Nature 1999, V400, P77 HCAPLUS
(13) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(14) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(15) Munoz, N; Eur J Gastroenterol Hepatol 1994, V6, P649
(16) Nishihira, T; J Cancer Res Clin Oncol 1993, V119, P441 HCAPLUS

(17) Orsulic, S; J Cell Sci 2000, V113, P1793 HCAPLUS
(18) Parkin, D; Int J Cancer 1993, V54, P594 MEDLINE
(19) Pisani, P; Int J Cancer 1993, V55, P891 MEDLINE
(20) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(21) Sashiyama, H; Cancer Lett 2002, V177, P21 HCAPLUS
(22) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(23) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(24) Weiner, L; Semin Oncol 1999, V26, P43 HCAPLUS
(25) Xu, Q; J Mol Med 1997, V75, P576 HCAPLUS
(26) Xu, Q; Nature 1999, V399, P267 HCAPLUS
(27) Zantek, N; Cell Growth Diff 1999, V10, P629 HCAPLUS
(28) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

L40 ANSWER 26 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:968922 HCAPLUS
DN 138:167753
ED Entered STN: 23 Dec 2002
TI c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding
AU Walker-Daniels, Jennifer; Riese, David J., II; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, USA
SO Molecular Cancer Research (**2002**), 1(1), 79-87
CODEN: MCROC5; ISSN: 1541-7786
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB The **EphA2 receptor protein tyrosine kinase** is overexpressed and functionally altered in a large number of human carcinomas. Despite its elevated levels in cancer, the **EphA2** on the surface of malignant cells demonstrates lower levels of ligand binding and **tyrosine** phosphorylation than the **EphA2** on non-transformed epithelial cells. In our present study, we demonstrate that ligand-mediated stimulation causes **EphA2** to be internalized and degraded. The mechanism of this response involves ligand-mediated autophosphorylation of **EphA2**, which promotes an association between **EphA2** and the c-Cbl adaptor **protein.** We also show that c-Cbl promotes stimulation-dependent **EphA2** degradation These findings are important for understanding the causes of **EphA2** overexpression in malignant cells and provide a foundation for investigating **EphA2** as a potential target for therapeutic intervention.
ST **EphA2 receptor tyrosine kinase**
degrdn Cbl **protein** breast carcinoma; **ephrin** A1
EphA2 membrane internalization autophosphorylation prostate carcinoma
IT Cell membrane
(**EphA2** associated with; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Phosphorylation, biological
(autophosphorylation, of **EphA2**; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Molecular association
(c-Cbl - **EphA2**; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)

IT Human
Protein degradation
(c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Mammary gland, neoplasm
Prostate gland, neoplasm
(carcinoma; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**, **ephrin**-A1, **EphA2** ligand; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gene c-Cbl; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Biological transport
(internalization, of **EphA2**; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Carcinoma
(mammary; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT Carcinoma
(prostatic; c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
IT **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(c-Cbl-dependent **EphA2 protein** degradation is induced by ligand binding in invasive human breast carcinoma and prostate carcinoma cells)
RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andoniou, C; EMBO J 1994, V13, P4515 HCAPLUS
(2) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(3) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(4) Baselga, J; Cancer Res 1998, V58, P2825 HCAPLUS
(5) Birchmeier, W; BioEssays 1995, V17, P97 HCAPLUS
(6) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(7) Carpenter, G; BioEssays 2000, V22, P697 HCAPLUS
(8) Carpenter, G; J Biol Chem 1990, V265, P7709 HCAPLUS
(9) Davis, S; Science 1994, V266, P816 HCAPLUS
(10) de Jong, R; J Biol Chem 1995, V270, P21468 HCAPLUS
(11) Dickson, R; Breast Cancer Res Treat 1996, V38, P1 MEDLINE
(12) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(13) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(14) Feshchenko, E; J Biol Chem 1998, V273, P8323 HCAPLUS
(15) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(16) Garcia-Guzman, M; Oncogene 2000, V19, P4058 HCAPLUS
(17) Jain, S; Oncogene 1997, V14, P2217 HCAPLUS
(18) Joazeiro, C; Science 1999, V286, P309 HCAPLUS
(19) Kim, H; Histol Histopathol 1999, V14, P1175 HCAPLUS

(20) Kinch, M; Biochem Soc Trans 1995, V23, P446 HCAPLUS
(21) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(22) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(23) Klapper, L; Cancer Res 2000, V60, P3384 HCAPLUS
(24) Kolibaba, K; Biochim Biophys Acta 1997, V1333, PF217 HCAPLUS
(25) Langdon, W; Aust N Z J Med 1995, V25, P859 MEDLINE
(26) Langdon, W; Proc Natl Acad Sci USA 1989, V86, P1168 HCAPLUS
(27) Levitzki, A; Science 1995, V267, P1782 HCAPLUS
(28) Levkowitz, G; Mol Cell 1999, V4, P1029 HCAPLUS
(29) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(30) Magal, E; J Neurosci Res 1996, V43, P735 HCAPLUS
(31) Malitschek, B; BioEssays 1995, V17, P1017 HCAPLUS
(32) Meng, W; Nature 1999, V398, P84 HCAPLUS
(33) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(34) Miyake, S; Crit Rev Oncog 1997, V8, P189 HCAPLUS
(35) Miyake, S; Proc Natl Acad Sci USA 1998, V95, P7927 HCAPLUS
(36) Pandey, A; Curr Biol 1995, V5, P986 HCAPLUS
(37) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(38) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(39) Pandey, A; Science 1995, V268, P567 HCAPLUS
(40) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(41) Patarca, R; Crit Rev Oncog 1996, V7, P343 HCAPLUS
(42) Press, M; Prog Clin Biol Res 1990, V354A, P209 MEDLINE
(43) Rabin, R; Lab Invest 1995, V73, P311
(44) Reese, D; Stem Cells 1997, V15, P1 HCAPLUS
(45) Riese, D; Oncogene 1995, V10, P1431 HCAPLUS
(46) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(47) Rusch, V; Cytokine Growth Factor Rev 1996, V7, P133 HCAPLUS
(48) Shak, S; Semin Oncol 1999, V26, P71 HCAPLUS
(49) Sorkin, A; J Biol Chem 1991, V266, P8355 HCAPLUS
(50) Tanaka, S; Nature 1996, V383, P528 HCAPLUS
(51) Thien, C; Oncogene 1997, V14, P2239 HCAPLUS
(52) Ueno, H; J Biol Chem 1997, V272, P8739 HCAPLUS
(53) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(54) Volberg, T; EMBO J 1992, V11, P1733 HCAPLUS
(55) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(56) Wang, Y; J Biok Chem 1996, V271, P17 HCAPLUS
(57) Waterman, H; J Biol Chem 1999, V274, P22151 HCAPLUS
(58) Weiner, L; Semin Oncol 1999, V26, P43 HCAPLUS
(59) Yokouchi, M; J Biol Chem 1999, V274, P31707 HCAPLUS
(60) Yoon, C; Science 1995, V269, P1102 HCAPLUS
(61) Zantek, N; Cell Growth & Differ 1999, P629 HCAPLUS
(62) Zantek, N; Clin Cancer Res 2001, V7(11), P3640 HCAPLUS
(63) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(64) Zetter, B; Semin Cancer Biol 1993, V4, P219 HCAPLUS

L40 ANSWER 27 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:968915** HCAPLUS
DN **138:215719**
ED Entered STN: 23 Dec 2002
TI **Blockade** of **EphA receptor tyrosine kinase** activation **inhibits** vascular endothelial cell growth factor-induced angiogenesis
AU Cheng, Nikki; Brantley, Dana M.; Liu, Hua; Lin, Qin; Enriquez, Miriam; Gale, Nick; Yancopoulos, George; Cerretti, Douglas Pat; Daniel, Thomas O.; Chen, Jin
CS Department of Cancer Biology, Division of Rheumatology, Vanderbilt University School of Medicine, Nashville, TN, 37232, USA
SO Molecular Cancer Research (**2002**), 1(1), 2-11
CODEN: MCROC5; ISSN: 1541-7786

PB American Association for Cancer Research
DT Journal
LA English
CC 2-10 (Mammalian Hormones)
AB Angiogenesis is a multistep process involving a diverse array of mol. signals. Ligands for **receptor tyrosine kinases** (RTKs) have emerged as critical mediators of angiogenesis. Three families of ligands, vascular endothelial cell growth factors (VEGFs), angiopoietins, and **ephrins**, act via RTKs expressed in endothelial cells. Recent evidence indicates that VEGF cooperates with angiopoietins to regulate vascular remodeling and angiogenesis in both embryogenesis and tumor neovascularization. However, the relationship between VEGF and **ephrins** remains unclear. Here we show that interaction between **EphA** RTKs and **ephrinA** ligands is necessary for induction of maximal neovascularization by VEGF. **EphA2** RTK is activated by VEGF through induction of **ephrinA1** ligand. A soluble **EphA2**-Fc **receptor inhibits** VEGF-, but not basic fibroblast growth factor-induced endothelial cell survival, migration, sprouting, and corneal angiogenesis. As an independent, but complementary approach, **EphA2** antisense oligonucleotides **inhibited** endothelial expression of **EphA2 receptor** and suppressed **ephrinA1**- and VEGF-induced cell migration. Taken together, these data indicate an essential role for **EphA receptor** activation in VEGF-dependent angiogenesis and suggest a potential new target for therapeutic intervention in pathogenic angiogenesis.
ST **EphA receptor tyrosine kinase** VEGF **ephrinA1** vessel endothelium angiogenesis
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphrinA1**; **blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT Apoptosis
Cell migration
Cell proliferation
(**blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT Blood vessel
(endothelium; **blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT Angiogenesis
(neovascularization; **blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT Phosphorylation, biological
(**receptor**; **blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT Endothelium
(vascular; **blockade** of **EphA receptor tyrosine kinase** activation **inhibits** VEGF-induced endothelial cell survival, migration and angiogenesis)
IT 106096-93-9, Basic fibroblast growth factor
RL: BSU (Biological study, unclassified); BIOL (Biological study)

(**blockade** of **EphA receptor**
tyrosine kinase activation **inhibits** VEGF-,
but FGF-induced endothelial cell survival, migration and angiogenesis)
IT 127464-60-2, Vascular endothelial growth factor **149433-91-0**,
EphA2 receptor tyrosine kinase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**blockade** of **EphA receptor**
tyrosine kinase activation **inhibits**
VEGF-induced endothelial cell survival, migration and angiogenesis)
RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, R; Genes Dev 1999, V3, P295
(2) Ades, E; J Invest Dermatol 1992, V99, P683 MEDLINE
(3) Asahara, T; Circ Res 1998, V83, P233 HCAPLUS
(4) Brantley, D; Oncogene 2002, V21, P7011 HCAPLUS
(5) Brekken, R; Cancer Res 2000, V60, P5117 HCAPLUS
(6) Bruckner, K; Science 1997, V275, P1640 MEDLINE
(7) Carmeliet, P; Nature 1996, V380, P435 HCAPLUS
(8) Chen, J; Oncogene 1996, V12, P979 HCAPLUS
(9) Cheng, N; Cytokine Growth Factor Rev 2002, V13, P75 HCAPLUS
(10) Daniel, T; Cancer Res 1999, V59, P4574 HCAPLUS
(11) Daniel, T; Kidney Int Suppl 1996, V57, PS73 HCAPLUS
(12) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(13) Drevs, J; Cancer Res 2000, V60, P4819 HCAPLUS
(14) Ferrara, N; Nature 1996, V380, P439 HCAPLUS
(15) Fong, G; Nature 1995, V376, P66 HCAPLUS
(16) Gale, N; Genes Dev 1999, V13, P1055 HCAPLUS
(17) Gerber, H; J Biol Chem 1998, V273, P30336 HCAPLUS
(18) Gerety, S; Mol Cell 1999, V4, P403 HCAPLUS
(19) Griffioen, A; Pharmacol Rev 2000, V52, P237 HCAPLUS
(20) Haigh, J; Development 2000, V127, P1445 HCAPLUS
(21) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(22) Holash, J; Science 1999, V284, P1994 HCAPLUS
(23) Holder, N; Development 1999, V126, P2033 HCAPLUS
(24) Holland, S; Nature 1996, V383, P722 HCAPLUS
(25) Holzman, L; Mol Cell Biol 1990, V10, P5830 HCAPLUS
(26) Huai, J; J Biol Chem 2001, V276, P6689 HCAPLUS
(27) Kenyon, B; Invest Ophthalmol Vis Sci 1996, V37, P1625 MEDLINE
(28) Kolizek, T; Curr Biol 1998, V8, P529
(29) Lin, P; Cell Growth & Differ 1998, V9, P49 HCAPLUS
(30) Maisonpierre, P; Science 1997, V277, P55 HCAPLUS
(31) McBride, J; Mech Dev 1998, V77, P201 HCAPLUS
(32) Miquerol, L; Development 2000, V127, P3941 HCAPLUS
(33) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(34) Pandey, A; Science 1995, V268, P567 HCAPLUS
(35) Phillips, G; In Vivo 1994, V8, P961 HCAPLUS
(36) Rousseau, S; Oncogene 1997, V15, P2169 HCAPLUS
(37) Shalaby, F; Nature 1995, V376, P62 HCAPLUS
(38) Vajkoczy, P; Neoplasia 1999, V1, P31 HCAPLUS
(39) Vitaliti, A; Cancer Res 2000, V60, P4311 HCAPLUS
(40) Wang, H; Cell 1998, V93, P741 HCAPLUS
(41) Wood, J; Cancer Res 2000, V60, P2178 HCAPLUS
(42) Yancopoulos, G; Nature 2000, V407, P242 HCAPLUS

L40 ANSWER 28 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:910729** HCAPLUS
DN **139:856**
ED Entered STN: 02 Dec 2002
TI An **Ephrin** Mimetic Peptide That Selectively Targets the
EphA2 Receptor

AU Koolpe, Mitchell; Dail, Monique; Pasquale, Elena B.
CS Burnham Institute, La Jolla, CA, 92037, USA
SO Journal of Biological Chemistry (2002), 277(49), 46974-46979
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
CC 1-12 (Pharmacology)
AB **Eph receptor tyrosine kinases** represent promising disease targets because they are differentially expressed in pathol. vs. normal tissues. The **EphA2 receptor** is up-regulated in transformed cells and tumor vasculature where it likely contributes to cancer pathogenesis. To exploit **EphA2** as a therapeutic target, the authors used phage display to identify two related peptides that bind selectively to **EphA2** with high affinity (submicromolar KD values). The peptides target the ligand-binding domain of **EphA2** and compete with **ephrin** ligands for binding. Remarkably, one of the peptides has **ephrin**-like activity in that it stimulates **EphA2 tyrosine** phosphorylation and signaling. Furthermore, this peptide can deliver phage particles to endothelial and tumor cells expressing **EphA2.** In contrast, peptides corresponding to **receptor** -interacting portions of **ephrin** ligands bind weakly and promiscuously to many **Eph receptors.** Bioactive **ephrin** mimetic peptides could be used to selectively deliver agents to **Eph receptor**-expressing tissues and modify **Eph** signaling in therapies for cancer, pathol. angiogenesis, and nerve regeneration.
ST **ephrin** mimetic peptide target **EphA2 receptor**
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** A2; **ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** A; **ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)
IT Human
Peptide library
Signal transduction, biological
(**ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)
IT Peptides, biological studies
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)
IT 532441-09-1 532441-10-4 532441-11-5 532441-12-6
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(**ephrin** mimetic peptide that selectively targets the **EphA2 receptor tyrosine kinase** and stimulates signaling)

RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(2) Arap, W; Proc Natl Acad Sci U S A 2002, V99, P1527 HCAPLUS
(3) Arap, W; Science 1998, V279, P377 HCAPLUS
(4) Carles-Kinch, K; Cancer Res 2002, V62, P2840 HCAPLUS
(5) Cheng, H; Cell 1994, V79, P157 HCAPLUS
(6) Daniel, T; Kidney Int Suppl 1996, V57, PS73 HCAPLUS
(7) Devlin, J; Science 1990, V249, P404 HCAPLUS
(8) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(9) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(10) Dvorak, H; Am J Pathol 1988, V133, P95 MEDLINE
(11) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(12) Ellerby, H; Nat Med 1999, V5, P1032 HCAPLUS
(13) Eph Nomenclature Committee; Cell 1997, V90, P403
(14) Essler, M; Proc Natl Acad Sci U S A 2002, V99, P2252 HCAPLUS
(15) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(16) Ganju, P; Oncogene 1994, V9, P1613 HCAPLUS
(17) Gerlag, D; Arthritis Res 2001, V3, P357 HCAPLUS
(18) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(19) Himanen, J; Nature 1998, V396, P486 HCAPLUS
(20) Himanen, J; Nature 2001, V414, P933 HCAPLUS
(21) Hornberger, M; Neuron 1999, V22, P731 HCAPLUS
(22) Koivunen, E; J Biol Chem 1993, V268, P20205 HCAPLUS
(23) Koivunen, E; J Cell Biol 1994, V124, P373 HCAPLUS
(24) Koivunen, E; Nat Biotechnol 1999, V17, P768 HCAPLUS
(25) Labrador, J; EMBO J 1997, V16, P3889 HCAPLUS
(26) McBride, J; Mech Dev 1998, V77, P201 HCAPLUS
(27) Menzel, P; Dev Biol 2001, V230, P74 HCAPLUS
(28) Miao, H; Nature Cell Biol 2001, V3, P527 HCAPLUS
(29) Miranda, J; Exp Neurol 1999, V156, P218 HCAPLUS
(30) Myers, C; J Cell Biol 2000, V148, P343 HCAPLUS
(31) Nemoto, T; Pathobiology 1997, V65, P195 HCAPLUS
(32) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(33) Olson, T; Int J Cancer 1997, V73, P865 HCAPLUS
(34) Pandey, A; Science 1995, V268, P567 HCAPLUS
(35) Pasqualini, R; J Cell Biol 1995, V130, P1189 HCAPLUS
(36) Rajotte, D; J Biol Chem 1999, V274, P11593 HCAPLUS
(37) Rodger, J; Eur J Neurosci 2001, V14, P1929 MEDLINE
(38) Ruiz, J; Mech Dev 1994, V46, P87 HCAPLUS
(39) Smith, G; Science 1985, V228, P1315 MEDLINE
(40) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(41) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(42) Wang, B; Biochemistry 1999, V38, P12499 HCAPLUS
(43) Wright, R; Bio-Technology 1995, V13, P165 HCAPLUS
(44) Yancopoulos, G; Nature 2000, V407, P242 HCAPLUS
(45) Yayon, A; Proc Natl Acad Sci U S A 1993, V90, P10643 HCAPLUS
(46) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(47) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(48) Zelinski, D; J Cell Biochem 2002, V85, P714 HCAPLUS

L40 ANSWER 29 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:822127** HCAPLUS
DN **138:104526**
ED Entered STN: 29 Oct 2002
TI Diverse roles for the **Eph** family **receptor tyrosine kinases** in carcinogenesis

AU Nakamoto, Masaru; Bergemann, Andrew D.
CS Department of Neurosciences/NC30, Lerner Research Institute, The Cleveland Clinic Foundation, Cleveland, OH, 44195, USA
SO Microscopy Research and Technique (2002), 59(1), 58-67
CODEN: MRTEEO; ISSN: 1059-910X
PB Wiley-Liss, Inc.
DT Journal; General Review
LA English
CC 14-0 (Mammalian Pathological Biochemistry)
AB A review. The **Eph** family of **receptor** Tyr **kinases** and their cell-presented ligands, the **ephrins**, are frequently overexpressed in a wide variety of cancers, including breast, small-cell lung and gastrointestinal cancers, melanomas, and neuroblastomas. In particular, one **Eph** family member, **EphA2**, is overexpressed in many cancers, including 40% of breast cancers. **EphA2** can also transform breast epithelial cells in vitro to display properties commonly associated with the development of metastasis. Remarkably, the oncogenic properties of **EphA2** contravene traditional dogma with regard to the oncogenic properties of a growth factor and its **receptor tyrosine kinase** : while stimulation of **EphA2** by its ligand (**ephrin**-A1) results in **EphA2** autophosphorylation, the stimulation reverses the oncogenic transformation. As will be discussed in this review, the apparent dependence of oncogenicity on the dephosphorylated state of **EphA2** most probably reflects the unique nature of **Eph** signaling. In particular, oncogenecity may depend on the capacity of unactivated **EphA2** to interact with a variety of signaling mols. As well as acting in oncogenic transformation, a growing body of evidence supports the importance of the concerted actions of **ephrins** and **Eph** mols. in tumor angiogenesis. Genetic studies, using targeted mutagenesis in mice, reveal that **ephrin**-B1, **ephrin**-B2, and **EphB4** are essential for the normal morphogenesis of the embryonic vasculature into a sophisticated network of arteries, veins, and capillaries. Initial studies indicate that these mols. are also angiogenic in tumors, and as such represent important new targets for the development of chemotherapeutic treatments.
ST review **Eph receptor tyrosine kinase** **ephrin** tumorigenesis
IT Transformation, neoplastic
(**Eph** family **receptor** Tyr **kinases** in carcinogenesis)
IT **Proteins**
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**; **Eph** family **receptor** Tyr **kinases** in carcinogenesis)
IT 149433-92-1, **Eph receptor tyrosine kinase**
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**Eph** family **receptor** Tyr **kinases** in carcinogenesis)
RE.CNT 126 THERE ARE 126 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, R; Cell 2001, V104, P57 HCAPLUS
(2) Adams, R; Genes Dev 1999, V13, P295 HCAPLUS
(3) Andres, A; Oncogene 1991, V6, P771 HCAPLUS
(4) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(5) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(6) Becker, N; Mech Dev 1994, V47, P3 HCAPLUS

(7) Beckmann, M; EMBO J 1994, V13, P3757 HCAPLUS
(8) Bennett, B; J Biol Chem 1994, V269, P14211 HCAPLUS
(9) Berclaz, G; Biochem Biophys Res Commun 1996, V226, P869 HCAPLUS
(10) Bergemann, A; Mol Cell Biol 1995, V15, P4921 HCAPLUS
(11) Birgbauer, E; Development 2000, V127, P1231 HCAPLUS
(12) Bohme, B; Oncogene 1993, V8, P2857 MEDLINE
(13) Bovenkamp, D; DNA Cell Biol 2001, V20, P203 HCAPLUS
(14) Boyd, A; J Biol Chem 1992, V267, P3262 HCAPLUS
(15) Brambilla, R; EMBO J 1995, V14, P3116 HCAPLUS
(16) Bruce, V; Brain Res 1999, V821, P169 HCAPLUS
(17) Bruckner, K; Neuron 1999, V22, P511 HCAPLUS
(18) Bruckner, K; Science 1997, V275, P1640 MEDLINE
(19) Buchert, M; J Cell Biol 1999, V144, P361 HCAPLUS
(20) Cantley, L; Cell 1991, V64, P281 HCAPLUS
(21) Chaib, H; Neoplasia 2001, V3, P43 HCAPLUS
(22) Chen, W; Int J Cancer 1999, V83, P579 HCAPLUS
(23) Cheng, H; Cell 1995, V82, P371 HCAPLUS
(24) Chiari, R; Cancer Res 2000, V60, P4855 HCAPLUS
(25) Clark, G; Oncogene 1996, V12, P169 HCAPLUS
(26) Davis, S; Science 1994, V266, P816 HCAPLUS
(27) Davy, A; EMBO J 2000, V19, P5396 HCAPLUS
(28) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(29) Dodelet, V; J Biol Chem 1999, V274, P31941 HCAPLUS
(30) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(31) Dottori, M; Blood 1999, V94, P2477 HCAPLUS
(32) Drescher, U; Cell 1995, V82, P359 HCAPLUS
(33) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(34) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(35) Easty, D; Int J Cancer 1997, V71, P1061 HCAPLUS
(36) Easty, D; Int J Cancer 1999, V84, P494 HCAPLUS
(37) Easty, D; Melanoma Res 2000, V10, P401 HCAPLUS
(38) Ellis, C; Oncogene 1996, V12, P1727 HCAPLUS
(39) Eph Nomenclature Committee; Cell 1997, V90, P403
(40) Even-Ram, S; J Biol Chem 2001, V276, P10952 HCAPLUS
(41) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(42) Frisch, S; J Cell Biol 1996, V134, P793 HCAPLUS
(43) Gale, N; Dev Biol 2001, V230, P151 HCAPLUS
(44) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(45) George, S; Cell 1998, V92, P633 HCAPLUS
(46) Gerety, S; Mol Cell 1999, V4, P403 HCAPLUS
(47) Giunciuglio, D; Int J Cancer 1995, V63, P815 HCAPLUS
(48) Gu, C; Mol Cell Biol 2001, V21, P4579 HCAPLUS
(49) Helbling, P; Development 2000, V127, P269 HCAPLUS
(50) Henkemeyer, M; Cell 1996, V86, P35 HCAPLUS
(51) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(52) Himanen, J; Nature 1998, V396, P486 HCAPLUS
(53) Hirai, H; Science 1987, V238, P1717 HCAPLUS
(54) Hock, B; Oncogene 1998, V17, P255 HCAPLUS
(55) Holland, S; EMBO J 1997, V16, P3877 HCAPLUS
(56) Holland, S; Nature 1996, V383, P722 HCAPLUS
(57) Holmberg, J; Nature 2000, V408, P203 HCAPLUS
(58) Huai, J; J Biol Chem 2001, V276, P6689 HCAPLUS
(59) Ikegaki, N; Hum Mol Genet 1995, V4, P2033 HCAPLUS
(60) Ilangumaran, S; Immunol Today 2000, V21, P2 HCAPLUS
(61) Iwase, T; Biochem Biophys Res Commun 1993, V194, P698 HCAPLUS
(62) Kalo, M; Biochemistry 1999, V38, P14396 HCAPLUS
(63) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(64) Kiyokawa, E; Cancer Res 1994, V54, P3645 HCAPLUS
(65) Knoll, B; Development 2001, V128, P895 HCAPLUS
(66) Kozlosky, C; Oncogene 1995, V10, P299 HCAPLUS

(67) Krull, C; Curr Biol 1997, V7, P571 HCAPLUS
(68) Kumar, R; Semin Oncol 2000, V27, P84 HCAPLUS
(69) Lackmann, M; J Biol Chem 1998, V273, P20228 HCAPLUS
(70) Lamorte, L; Surg Oncol Clin N Am 2001, V10, P271 MEDLINE
(71) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(72) Lu, Q; Cell 2001, V105, P69 HCAPLUS
(73) Maru, Y; Mol Cell Biol 1988, V8, P3770 HCAPLUS
(74) Maru, Y; Oncogene 1990, V5, P445 HCAPLUS
(75) McBride, J; Mech Dev 1998, V77, P201 HCAPLUS
(76) Mellitzer, G; Nature 1999, V400, P77 HCAPLUS
(77) Menzel, P; Dev Biol 2001, V230, P74 HCAPLUS
(78) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(79) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(80) Miescher, G; Brain Res Mol Brain Res 1997, V46, P17 HCAPLUS
(81) Munthe, E; FEBS Lett 2000, V466, P169 HCAPLUS
(82) Nakamoto, M; Cell 1996, V86, P755 HCAPLUS
(83) Nieto, M; Development 1992, V116, P1137 HCAPLUS
(84) Nikolova, Z; J Cell Sci 1998, V111, P2741 HCAPLUS
(85) Oba, S; Cancer Lett 2001, V164, P97 HCAPLUS
(86) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(87) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(88) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(89) Robinson, D; Proc Natl Acad Sci 1996, V93, P5958 HCAPLUS
(90) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(91) Ruoslahti, E; Princess Takamatsu Symp 1994, V24, P99 MEDLINE
(92) Saarma, M; Eur J Biochem 2000, V267, P6968 HCAPLUS
(93) Sakano, S; Oncogene 1996, V13, P813 HCAPLUS
(94) Schoenenberger, C; EMBO J 1988, V7, P169 HCAPLUS
(95) Segatto, O; Mol Cell Biol 1988, V8, P5570 HCAPLUS
(96) Shamah, S; Cell 2001, V105, P233 HCAPLUS
(97) Shen, Y; Mol Biol Cell 1999, V10, P2507 HCAPLUS
(98) Shimoyama, M; Growth Factors 2000, V18, P63 MEDLINE
(99) Shin, D; Dev Biol 2001, V230, P139 HCAPLUS
(100) Simons, K; Nature 1997, V387, P569 HCAPLUS
(101) Smalla, M; Protein Sci 1999, V8, P1954 HCAPLUS
(102) Sommers, C; Breast Cancer Res Treat 1994, V31, P325 MEDLINE
(103) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(104) Stein, E; J Biol Chem 1996, V271, P23588 HCAPLUS
(105) Stein, E; J Biol Chem 1998, V273, P1303 HCAPLUS
(106) Steube, K; Leuk Lymphoma 1999, V33, P371 HCAPLUS
(107) Takai, N; Oncol Rep 2001, V8, P567 HCAPLUS
(108) Tang, X; Clin Cancer Res 1999, V5, P455 HCAPLUS
(109) Tang, X; Med Pediatr Oncol 2000, V35, P656 MEDLINE
(110) Tang, X; Oncogene 1998, V17, P521 HCAPLUS
(111) Tang, X; Proc Natl Acad Sci 2000, V97, P10936 HCAPLUS
(112) Tessier-Lavigne, M; Cell 1995, V82, P345 HCAPLUS
(113) Torres, R; Neuron 1998, V21, P1453 HCAPLUS
(114) Tuzi, N; Br J Cancer 1994, V69, P417 HCAPLUS
(115) Vogt, T; Clin Cancer Res 1998, V4, P791 HCAPLUS
(116) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(117) Wang, H; Cell 1998, V93, P741 HCAPLUS
(118) Wang, H; Neuron 1997, V18, P383 HCAPLUS
(119) Weaver, V; Semin Cancer Biol 1995, V6, P175 HCAPLUS
(120) Wicks, I; Proc Natl Acad Sci 1992, V89, P1611 HCAPLUS
(121) Winslow, J; Neuron 1995, V14, P973 HCAPLUS
(122) Xu, L; J Biol Chem 2000, V275, P30597 HCAPLUS
(123) Xu, Q; Development 1995, V121, P4005 HCAPLUS
(124) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(125) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(126) Zisch, A; Oncogene 1998, V16, P2657 HCAPLUS

L40 ANSWER 30 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:811847 HCAPLUS
DN 138:301095
ED Entered STN: 25 Oct 2002
TI Activation of the **EphA2 tyrosine kinase** stimulates the MAP/ERK **kinase** signaling cascade
AU Pratt, Rebecca L.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, 47907-1246, USA
SO Oncogene (**2002**), 21(50), 7690-7699
CODEN: ONCNES; ISSN: 0950-9232
PB Nature Publishing Group
DT Journal
LA English
CC 13-6 (Mammalian Biochemistry)
AB Intracellular signaling by **receptor tyrosine kinases** regulates many different aspects of cell behavior. Recent studies in our laboratory and others have demonstrated that the **EphA2 receptor tyrosine kinase** critically regulates tumor cell growth, migration and invasiveness. Although the cellular consequences of **EphA2** signaling have been the focus of recent attention, the biochem. changes that are triggered by ligand-mediated activation of **EphA2** remain largely unknown. Herein, we demonstrate that ligand stimulation of **EphA2** promotes the nucleus translocation and phosphorylation of ERK **kinases**, followed by an increase in nuclear induction of the Elk-1 transcription factor. Ligand-mediated activation allows **EphA2** to form a mol. complex with the SHC and GRB2 adaptor **proteins.** Specifically, we demonstrate that **tyrosine** phosphorylated **EphA2** interacts with the PTB and SH2 domains of SHC. We also show that the interaction of **EphA2** with GRB2 is indirect and mediated by SHC and that this complex is necessary for **EphA2**-mediated activation of ERK **kinases.** These studies provide a novel mechanism to demonstrate how **EphA2** can convey information from the cell exterior to the nucleus.
ST **EphA2 kinase** activation MAP ERK **kinase** signal transduction
IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ELK-1; activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade in relation to)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(GRB-2 (growth factor **receptor**-bound **protein** 2); SHC activation of GRB2 and **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade)
IT Molecular association
(SHC activation of GRB2 and **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(SHC; SHC activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade)
IT Signal transduction, biological
(activation of the **EphA2 tyrosine kinase**

stimulation of MAP/ERK **kinase** signaling cascade)
IT Cell nucleus
(activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade and nucleus translocation)
IT Biological transport
(intracellular; activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade and nucleus translocation)
IT Phosphorylation, biological
(**protein**; activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade in relation to)
IT 142243-02-5, ERK **kinase 149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(activation of the **EphA2 tyrosine kinase** stimulation of MAP/ERK **kinase** signaling cascade)
RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Aliaga, J; Am J Physiol 1999, V277, PG631 HCAPLUS
(2) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(3) Blumer, K; Trends Biochem Sci 1994, V19, P236 HCAPLUS
(4) Borg, J; Curr Top Microbiol Immunol 1998, V228, P23 HCAPLUS
(5) Brennan, C; Development 1997, V124, P655 HCAPLUS
(6) Brunet, A; Comptes Rendus des Seances de la Societe de Biologie et de Ses Filiales 1995, V189, P43 HCAPLUS
(7) Carpenter, M; J Neurosci Res 1995, V42, P199 HCAPLUS
(8) Cattaneo, E; Trends Neurosci 1998, V21, P476 HCAPLUS
(9) Charest, A; J Biol Chem 1996, V271, P8424 HCAPLUS
(10) Clarkson, R; Mol Endocrinol 1999, V13, P619 HCAPLUS
(11) Cowley, S; Cell 1994, V77, P841 HCAPLUS
(12) Davis, R; Mol Repro Dev 1995, V42, P459 HCAPLUS
(13) Davis, S; Science 1994, V266, P816 HCAPLUS
(14) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(15) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(16) Elowe, S; Mol Cell Biol 2001, V21, P7429 HCAPLUS
(17) Gonzalez, F; J Cell Biol 1993, V122, P1089 HCAPLUS
(18) Graham, F; Virology 1973, V52, P456 MEDLINE
(19) Graham, S; Mol Cell Biol 1996, V16, P6132 HCAPLUS
(20) Hunter, T; Philos Trans R Soc Lond B Biol Sci 1998, V353, P583 HCAPLUS
(21) Lenormand, P; J Cell Biol 1998, V142, P625 HCAPLUS
(22) Lin, T; J Cell Biol 1997, V136, P1385 HCAPLUS
(23) Lu, Q; Biol Repro 2002, V66, P29 HCAPLUS
(24) Luzi, L; Curr Opin Genet Dev 2000, V10, P668 HCAPLUS
(25) Macleod, K; Trends Biochem Sci 1992, V17, P251 HCAPLUS
(26) McCormick, B; Pharmacol Ther 1992, V53, P239 MEDLINE
(27) McNeil, P; Fluorescence Microscopy of Living Cells in Culture 1989, P153 HCAPLUS
(28) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(29) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(30) Morris, M; Curr Opin Biotechnol 2000, V11, P461 HCAPLUS
(31) Morris, M; J Biol Chem 2000, V275, P28849 HCAPLUS
(32) Nakamoto, M; Cell 1996, V86, P755 HCAPLUS
(33) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(34) Pandey, A; Science 1995, V268, P567 HCAPLUS
(35) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(36) Pawson, T; Nature 1995, V373, P573 HCAPLUS
(37) Pawson, T; Science 1998, V278, P2075
(38) Reese, D; Stem Cells 1997, V15, P1 HCAPLUS

(39) Roovers, K; Bioessays 2000, V22, P818 HCAPLUS
(40) Roovers, K; Mol Biol Cell 1999, V10, P3197 HCAPLUS
(41) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(42) Scheid, M; Curr Biol 2000, V10, PR191 HCAPLUS
(43) Schramek, H; J Biol Chem 1997, V272, P11426 HCAPLUS
(44) Shao, H; J Biol Chem 1995, V270, P5636 HCAPLUS
(45) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(46) Townsend, K; J Biol Chem 1999, V274, P1801 HCAPLUS
(47) Treisman, R; Curr Opin Genet Dev 1994, V4, P96 HCAPLUS
(48) van der Geer, P; Trends Biochem Sci 1995, V20, P277 HCAPLUS
(49) Vanhoutte, P; J Biol Chem 2001, V276, P5189 HCAPLUS
(50) Verlhac, M; EMBO J 2000, V19, P6065 HCAPLUS
(51) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(52) Wang, H; Neuron 1997, V18, P383 HCAPLUS
(53) Yarden, Y; Nat Rev Mol Cell Biol 2001, V2, P127 HCAPLUS
(54) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(55) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(56) Zohn, I; Mol Cell Biol 1998, V18, P1225 HCAPLUS

L40 ANSWER 31 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:783137 HCAPLUS
DN 138:53504
ED Entered STN: 15 Oct 2002
TI Regulation of the **EphA2 kinase** by the low molecular weight **tyrosine** phosphatase induces transformation
AU Kikawa, Keith D.; Vidale, Derika R.; Van Etten, Robert L.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University, West Lafayette, IN, 47907, USA
SO Journal of Biological Chemistry (**2002**), 277(42), 39274-39279
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB Intracellular signaling by **protein tyrosine** phosphorylation is generally understood to govern many aspects of cellular behavior. The biol. consequences of this signaling pathway are important because the levels of **protein tyrosine** phosphorylation are frequently elevated in cancer cells. In the classic paradigm, **tyrosine kinases** promote tumor cell growth, survival, and invasiveness, whereas **tyrosine** phosphatases neg. regulate these same behaviors. Here, we identify one particular **tyrosine** phosphatase, low mol. weight **tyrosine** phosphatase (LMW-PTP), which is frequently overexpressed in transformed cells. We also show that overexpression of LMW-PTP is sufficient to confer transformation upon non-transformed epithelial cells. Notably, we show that the **EphA2 receptor tyrosine kinase** is a prominent substrate for LMW-PTP and that the oncogenic activities of LMW-PTP result from altered **EphA2** expression and function. These results suggest a role for LMW-PTP in transformation progression and link its oncogenic potential to **EphA2.**
ST **EphA2** LMW **tyrosine** phosphatase signaling assocn neoplastic transformation
IT Molecular association
(**EphA2** and LMW-PTP form mol. complex in vivo)
IT Phosphorylation, biological
(**protein**, of **protein tyrosine**; regulation of **EphA2 kinase** by low mol. weight **tyrosine** phosphatase induces transformation)

IT Dephosphorylation, biological
Human
Neoplasm
Signal transduction, biological
Transformation, neoplastic
(regulation of **EphA2 kinase** by low mol. weight **tyrosine** phosphatase induces transformation)
IT 60-18-4, L-**Tyrosine**, biological studies
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(phosphorylation; regulation of **EphA2 kinase** by low mol. weight **tyrosine** phosphatase induces transformation)
IT **149433-91-0, EphA2 receptor tyrosine kinase** 352548-19-7, Phosphatase, **protein phosphotyrosine**, LMW
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(regulation of **EphA2 kinase** by low mol. weight **tyrosine** phosphatase induces transformation)
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Birchmeier, W; Bioessays 1995, V17, P97 HCAPLUS
(3) Bryson, G; Genomics 1995, V30, P133 HCAPLUS
(4) Carles-Kinch, K; Cancer Res 2001, V62, P2840
(5) Cates, C; Cancer Lett 1996, V110, P49 HCAPLUS
(6) Clark, G; Oncogene 1996, V12, P169 HCAPLUS
(7) Cobb, B; Oncogene 1993, V8, P2897 HCAPLUS
(8) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(9) Fiaschi, T; J Biol Chem 2001, V276, P49156 HCAPLUS
(10) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(11) Hunter, T; Cell 2000, V100, P113 HCAPLUS
(12) Jacob, A; Cancer Detect Prev 1999, V23, P325 HCAPLUS
(13) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(14) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(15) Liu, X; Recent Prog Horm Res 1994, V49, P149 HCAPLUS
(16) Miao, H; Nat Cell Bio 2000, V2, P62 HCAPLUS
(17) Paine, T; Int J Cancer 1992, V50, P463 MEDLINE
(18) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(19) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(20) Pawson, T; Science 1997, V278, P2075 HCAPLUS
(21) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(22) Shevrin, D; Prostate 1989, V15, P187 MEDLINE
(23) Shimizu, H; Biochem Biophys Res Commun 2001, V289, P602 HCAPLUS
(24) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(25) Sun, X; Cell Growth & Differ 1999, V10, P343 HCAPLUS
(26) Volberg, T; Cell Regul 1991, V2, P105 HCAPLUS
(27) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(28) Wo, Y; Biochemistry 1992, V31, P1712 HCAPLUS
(29) Zantek, N; Cell Growth & Differ 1999, V10, P629 HCAPLUS
(30) Zantek, N; Clin Cancer Res 2001, V7, P3640 HCAPLUS
(31) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(32) Zhang, M; J Biol Chem 1998, V273, P21714 HCAPLUS
(33) Zhang, Z; J Biol Chem 1994, V269, P25947 HCAPLUS

L40 ANSWER 32 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:758670** HCAPLUS
DN **138:22838**
ED Entered STN: 07 Oct 2002
TI Soluble **Eph A receptors inhibit**

tumor angiogenesis and progression in vivo
AU Brantley, Dana M.; Cheng, Nikki; Thompson, Erin J.; Lin, Qing; Brekken, Rolf A.; Thorpe, Philip E.; Muraoka, Rebecca S.; Cerretti, Douglas Pat; Pozzi, Ambra; Jackson, Dowdy; Lin, Charles; Chen, Jin
CS Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN, 37232, USA
SO Oncogene (**2002**), 21(46), 7011-7026
CODEN: ONCNES; ISSN: 0950-9232
PB Nature Publishing Group
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB The **Eph** family of **receptor tyrosine kinases** and their ligands, known as **ephrins**, play a crucial role in vascular development during embryogenesis. The function of these mols. in adult angiogenesis has not been well characterized. Here, we report that **blocking Eph A** class **receptor** activation **inhibits** angiogenesis in two independent tumor types, the RIP-Tag transgenic model of angiogenesis-dependent pancreatic islet cell carcinoma and the 4T1 model of metastatic mammary adenocarcinoma. **Ephrin**-A1 ligand was expressed in both tumor and endothelial cells, and **EphA2 receptor** was localized primarily in tumor-associated vascular endothelial cells. Soluble **EphA2**-Fc or **EphA3**-Fc **receptors inhibited** tumor angiogenesis in cutaneous window assays, and tumor growth in vivo. **EphA2**-Fc or **EphA3**-Fc treatment resulted in decreased tumor vascular d., tumor volume, and cell proliferation, but increased cell apoptosis. However, **EphA2**-Fc had no direct effect on tumor cell growth or apoptosis in culture, yet **inhibited** migration of endothelial cells in response to tumor cells, suggesting that the soluble **receptor inhibited** blood vessel recruitment by the tumor. These data provide the first functional evidence for **Eph A** class **receptor** regulation of pathogenic angiogenesis induced by tumors and support the function of A class **Eph receptors** in tumor progression.
ST **ephrin** A **receptor** tumor angiogenesis
IT Mammary gland, neoplasm
(adenocarcinoma, metastasis; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Pancreatic islet of Langerhans, neoplasm
(carcinoma; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Blood vessel
(endothelium; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A1; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A2, soluble complexes, with Fc; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT **Receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A2; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)

IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A3, soluble complexes, with Fc; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Carcinoma
(mammary adenocarcinoma, metastasis; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Carcinoma
(pancreatic islet; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Angiogenesis
Human
(soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
IT Endothelium
(vascular; soluble **Eph A receptors inhibit** tumor angiogenesis and progression in vivo)
RE.CNT 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Aaltomaa, S; J Cancer Res Clin Oncol 1993, V119, P288 MEDLINE
(2) Adams, R; Genes Dev 1999, V3, P295
(3) Adams, R; Genes Dev 1999, V13, P295 HCAPLUS
(4) Arbiser, J; Proc Natl Acad Sci USA 1997, V94, P861 HCAPLUS
(5) Aslakson, C; Cancer Res 1992, V52, P1399 MEDLINE
(6) Bergers, G; Nat Cell Biol 2000, V2, P737 HCAPLUS
(7) Bergers, G; Science 1999, V284, P808 HCAPLUS
(8) Brantley, D; Mech Dev 2000, V97, P149 HCAPLUS
(9) Brantley, D; Mol Biol Cell 2001, V12, P1445 HCAPLUS
(10) Brekken, R; Cancer Res 1998, V58, P1952 HCAPLUS
(11) Chen, J; J Biol Chem 1998, V273, P24670 HCAPLUS
(12) Cheng, N; Cytokine and Growth Factor Reviews 2002, V13, P75 HCAPLUS
(13) Daniel, T; Kidney Int Suppl 1996, V57, PS73 HCAPLUS
(14) Dankort, D; Transgenic models of breast cancer metastasis 1996
(15) Davis, S; Science 1994, V266, P816 HCAPLUS
(16) Davy, A; EMBO J 2000, V19, P5396 HCAPLUS
(17) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(18) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(19) Easty, D; Int J Cancer 1999, V84, P494 HCAPLUS
(20) Folkman, J; J Clin Oncol 1994, V12, P441 MEDLINE
(21) Folkman, J; J Natl Cancer Inst 1990, V82, P4 MEDLINE
(22) Folkman, J; Nature 1989, V339, P58 MEDLINE
(23) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(24) Gale, N; Genes Dev 1999, V13, P1055 HCAPLUS
(25) Gerety, S; Molecular Cell 1999, V4, P403 HCAPLUS
(26) Goede, V; Anticancer Res 1998, V18, P2199 MEDLINE
(27) Hanahan, D; Nature 1985, V315, P115 HCAPLUS
(28) Hattori, M; Science 2000, V289, P1360 HCAPLUS
(29) Holder, N; Development 1999, V126, P2033 HCAPLUS
(30) Holzman, L; Mol Cell Biol 1990, V10, P5830 HCAPLUS
(31) Huai, J; J Biol Chem 2001, V276, P6689 HCAPLUS
(32) Huang, Q; Nat Biotechnol 1999, V17, P1033 HCAPLUS
(33) Kuehn, R; Pancreas 1999, V18, P96 MEDLINE
(34) Laferriere, J; J Biol Chem 2001, V276, P33762 HCAPLUS
(35) Li, C; J Natl Cancer Inst 2000, V92, P143 MEDLINE
(36) Lin, P; Proc Natl Acad Sci USA 1998, V95, P8829 HCAPLUS
(37) McBride, J; Nech Dev 1998, V77, P201 HCAPLUS
(38) Muraoka, R; J Cell Biol 2001, V153, P917 HCAPLUS
(39) Myers, C; J Cell Biol 2000, V148, P343 HCAPLUS

(40) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(41) Owens, R; J Natl Cancer Inst 1974, V53, P261 MEDLINE
(42) Pandey, A; Science 1995, V268, P567 HCAPLUS
(43) Papenfuss, H; Microvasc Res 1979, V18, P311 MEDLINE
(44) Passaniti, A; Lab Invest 1992, V67, P519 MEDLINE
(45) Prewett, M; Cancer Res 1999, V59, P5209 HCAPLUS
(46) Preziosi, R; J Comp Pathol 1995, V113, P301 HCAPLUS
(47) Radvanyi, F; Mol Cell Biol 1993, V13, P4223 HCAPLUS
(48) Rockwell, S; Br J Cancer Suppl 1978, V37, P212 HCAPLUS
(49) Rockwell, S; Cancer Res 1981, V41, P527 MEDLINE
(50) Rockwell, S; Int J Radiat Biol Relat Stud Phys Chem Med 1977, V31, P153 MEDLINE
(51) Van den Broecke, C; Clin Exp Metastasis 1996, V14, P282 MEDLINE
(52) Walker-Daniels, J; The Prostate 1999, V41, P275 HCAPLUS
(53) Wang, H; Cell 1998, V93, P741 HCAPLUS
(54) Weidner, N; Angiogenesis and breast cancer 1996
(55) Weidner, N; J Natl Cancer Inst 1992, V84, P1875 MEDLINE
(56) Weidner, N; N Engl J Med 1991, V324, P1 MEDLINE
(57) Yancopoulos, G; Nature 2000, V407, P242 HCAPLUS
(58) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(59) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

L40 ANSWER 33 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:618525 HCAPLUS
ED Entered STN: 16 Aug 2002
TI Design and synthesis of **tyrosine** phosphatase inhibitor directed toward new cancer treatments
AU Zabell, Adam P. R.; Stauffacher, Cynthia; **Kinch, Michael**; Katsuyama, Isamu; Wiest, Olaf; Helquist, Paul
CS Walther Cancer Institute, Purdue University, West Lafayette, IN, 47907, USA
SO Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (**2002**), ORGN-130 Publisher: American Chemical Society, Washington, D. C.
CODEN: 69CZPZ
DT Conference; Meeting Abstract
LA English
AB One of the most important aspects in the treatment of cancer is the control of metastasis. We have been working on identification of **tyrosine kinases** and phosphatases, which are relevant to metastatic cancers. Recent studies have shown that unphosphorylated **EphA2 tyrosine kinase** participates in metastatic cell growth and invasiveness, that **tyrosine** phosphatase HCPTP is overexpressed in metastatic cells, and that HCPTP can dephosphorylate **EphA2**. Thus, designing inhibitors selective for HCPTP are expected to provide a novel mechanism to reduce or eliminate the metastatic effects of **EphA2**. On the basis of this concept, possible inhibitors have been proposed by use of computational design and their synthetic studies have subsequently been started. The recent progress on this work directed toward new cancer treatments will be reported.

L40 ANSWER 34 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:580110** HCAPLUS
DN **137:382619**
ED Entered STN: 05 Aug 2002
TI Negative regulation of **EphA2 receptor** by Cbl
AU Wang, You-jie; Ota, Satoshi; Kataoka, Hideki; Kanamori, Masao; Li, Zhong-you; Band, Hamid; Tanaka, Masamitsu; Sugimura, Haruhiko
CS First Department of Pathology, Hamamatsu University School of Medicine,

Handayama, Hamamatsu, 431-3192, Japan
SO Biochemical and Biophysical Research Communications (**2002**), 296(1), 214-220
CODEN: BBRCA9; ISSN: 0006-291X
PB Elsevier Science
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
AB The c-Cbl proto-oncogene product Cbl has emerged as a neg. regulator of **receptor** and non-**receptor tyrosine kinases**, a function dependent on its recently identified ubiquitin ligase activity. Here, we report that **EphA2**, a member of **Eph receptor tyrosine kinases** is neg. regulated by Cbl. The neg. regulation of **EphA2** mediated by Cbl is dependent on the activity of **EphA2**, as the **kinase** inactive mutant of **EphA2** cannot be regulated by Cbl. Moreover, a point mutation (G306E-Cbl) in TKB region of Cbl that has been reported to abolish Cbl binding to RTKs and non-**receptor tyrosine kinases** impaired the binding to active **EphA2**. The dominant neg. mutant 70Z-Cbl, which has a 17-amino acids deletion in the N-boundary of the RING finger domain, showed defunct neg. regulatory function of Cbl to **EphA2**. These results demonstrate that the TKB domain and RING finger domain of Cbl are essential for this neg. regulation.
ST Cbl **protein EphA2 receptor tyrosine kinase**
IT **Protein** motifs
(RING finger; RING finger domain of Cbl in neg. regulation of **EphA2 receptor**)
IT **Protein** motifs
(TKB (**tyrosine kinase**-binding) domain; TKB domain of Cbl in neg. regulation of **EphA2 receptor**)
IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(c-cbl; neg. regulation of **EphA2 receptor** by Cbl in relation to)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gene c-Cbl; neg. regulation of **EphA2 receptor** by Cbl)
IT **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(neg. regulation of **EphA2 receptor** by Cbl)
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bartkiewicz, M; J Biol Chem 1999, V274, P30887 HCAPLUS
(2) Blake, T; EMBO J 1993, V12, P2017 HCAPLUS
(3) Davis, S; Science 1994, V266, P816 HCAPLUS
(4) Dodelet, V; Oncogene 2000, V19, P5614 HCAPLUS
(5) Eph Nomenclature Committee; Cell 1997, V90, P403
(6) Holder, N; Development 1999, V126, P2033 HCAPLUS
(7) Holland, S; Nature 1996, V383, P722 HCAPLUS
(8) Huang, J; Mol Immunol 2000, V37, P1057 HCAPLUS
(9) Kiyokawa, E; Cancer Res 1994, V54, P3645 HCAPLUS
(10) Klein, R; Curr Opin Cell Biol 2001, V13, P196 HCAPLUS
(11) Levkowitz, G; Oncogene 1996, V12, P1117 HCAPLUS
(12) Lupher, M; Immunol Today 1999, V20, P375 HCAPLUS
(13) Meng, W; Nature 1999, V398, P84 HCAPLUS
(14) Miyake, S; J Biol Chem 1999, V274, P16619 HCAPLUS

(15) Miyake, S; Proc Natl Acad Sci USA 1998, V95, P7927 HCAPLUS
(16) Ota, S; J Biol Chem 2000, V275, P414 HCAPLUS
(17) Ota, Y; Science 1997, V276, P418 HCAPLUS
(18) Patan, S; J Neurooncol 2000, V50, P1 MEDLINE
(19) Tanaka, M; Mol Cell Biol 1995, V15, P6829 HCAPLUS
(20) Tanaka, M; Oncogene 1998, V17, P1509 HCAPLUS
(21) Tang, X; Clin Cancer Res 1999, V5, P455 HCAPLUS
(22) Yokouchi, M; J Biol Chem 1999, V274, P31707 HCAPLUS

L40 ANSWER 35 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:567861** HCAPLUS
DN **137:367053**
ED Entered STN: 31 Jul 2002
TI **EphrinA1**-induced cytoskeletal re-organization requires FAK and p130cas
AU Carter, Nigel; Nakamoto, Tetsuya; Hirai, Hisamaru; Hunter, Tony
CS Molecular and Cell Biology Laboratory, The Salk Institute for Biological Studies, La Jolla, CA, 92037, USA
SO Nature Cell Biology (**2002**), 4(8), 565-573
CODEN: NCBIFN; ISSN: 1465-7392
PB Nature Publishing Group
DT Journal
LA English
CC 13-6 (Mammalian Biochemistry)
AB **Ephrins** and **Eph receptors** are involved in axon guidance and cellular morphogenesis. An interaction between **ephrin** and **Eph receptors** elicits neuronal growth-cone collapse through cytoskeletal disassembly. When NIH3T3 cells were plated onto an **ephrinA1**-coated surface, the cells both adhered and spread. Adhesion and spreading proceeded concomitantly with changes in both the actin and microtubule cytoskeleton. **EphA2**, focal adhesion **kinase** (FAK) and p130cas were identified as the major **ephrin**-dependent phosphotyrosyl **proteins** during the **ephrin**-induced morphol. changes. Mouse embryonic fibroblasts (MEFs) derived from FAK-/- and p130cas-/- mice had severe defects in **ephrinA1**-induced cell spreading, which were reversed after re-expression of FAK or p130cas, resp. Expression of a constitutively active **EphA2** induced NIH3T3 cells to undergo identical, but ligand-independent, morphol. changes. These data show that **ephrinA1** can induce cell adhesion and actin cytoskeletal changes in fibroblasts in a FAK- and p130cas-dependent manner, through activation of the **EphA2 receptor**. The finding that **ephrin-Eph** signalling can result in actin cytoskeletal assembly, rather than disassembly, has many implications for **ephrin-Eph** responses in other cell types.
ST FAK p130cas **ephrina receptor** cytoskeletal reorganization
IT Animal cell line
(3T3, NIH3T3; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT Growth factors, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphrinA1**; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT Adhesion, biological
Cytoskeleton
Morphogenesis, animal
(FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT Fibroblast

Microtubule
Molecular association
(FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization in relation to)
IT Actins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization in relation to)
IT Spreading
(biol.; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT Axon
(outgrowth; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT **Proteins**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p125FAK; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT Phosphoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p130cas; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT **Receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**protein**, **EphrinA1**; FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
IT 144114-16-9, Focal adhesion **kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(FAK and p130cas in **EphrinA1** and **receptors** in induction of cytoskeletal reorganization)
RE.CNT 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Becker, E; Mol Cell Biol 2000, V5, P1537
(2) Berrier, A; J Cell Biol 2000, V151, P1549 HCAPLUS
(3) Bruckner, K; Science 1997, V275, P1640 MEDLINE
(4) Cary, L; J Cell Biol 1998, V140, P211 HCAPLUS
(5) Davy, A; EMBO J 2001, V19, P5396
(6) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(7) Dodelet, V; J Biol Chem 1999, V274, P31941 HCAPLUS
(8) Elowe, S; Mol Cell Biol 2001, V21, P7429 HCAPLUS
(9) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(10) Gao, P; J Neurosci Res 2000, V60, P427 HCAPLUS
(11) Gerlai, R; Nature Rev Neurosci 2001, V2, P205 HCAPLUS
(12) Gonzatti-Haces, M; Proc Natl Acad Sci USA 1988, V85, P21 HCAPLUS
(13) Gu, C; Mol Cell Biol 2001, V14, P4579
(14) Harte, M; Biochim Biophys Acta 2000, V1499, P34 HCAPLUS
(15) Hauck, C; Immunol Res 2000, V21, P293 HCAPLUS
(16) Holland, S; EMBO J 1997, V16, P3877 HCAPLUS
(17) Holland, S; Nature 1996, V383, P722 HCAPLUS
(18) Holmberg, J; Nature 2000, V408, P203 HCAPLUS
(19) Honda, H; Biochem Biophys Res Commun 1999, V262, P25 HCAPLUS
(20) Honda, H; Nature Genet 1998, V19, P361 HCAPLUS
(21) Huai, J; J Biol Chem 2001, V276, P6689 HCAPLUS
(22) Huynh-Do, U; EMBO J 1999, V18, P2165 HCAPLUS
(23) Ilic, D; Nature 1995, V377, P539 HCAPLUS
(24) Jiang, W; Mol Cell 1998, V2, P877 HCAPLUS
(25) Klein, R; Curr Opin Cell Biol 2001, V13, P196 HCAPLUS
(26) Klingbeil, C; J Cell Biol 2001, V152, P97 HCAPLUS
(27) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS

(28) Liu, A; Cancer Res 2000, V60, P3429 HCAPLUS
(29) Lu, Q; Cell 2001, V105, P69 HCAPLUS
(30) Miao, H; Nature Cell Biol 2000, V2, P62 HCAPLUS
(31) Miao, H; Nature Cell Biol 2001, V3, P527 HCAPLUS
(32) Monschau, B; EMBO J 1997, V16, P1258 HCAPLUS
(33) Parsons, J; Oncogene 2000, V19, P5606 HCAPLUS
(34) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(35) Pasquale, E; Science 1997, V275, P1640
(36) Polte, T; Proc Natl Acad Sci USA 1995, V92, P10678 HCAPLUS
(37) Rodrigues, G; Mol Cell Biol 1993, V13, P6711 HCAPLUS
(38) Ruest, P; Cell Growth Differ 2000, V11, P41 HCAPLUS
(39) Schlaepfer, D; Mol Cell Biol 1996, V16, P5623 HCAPLUS
(40) Schlaepfer, D; Nature 1994, V372, P786 HCAPLUS
(41) Schlaepfer, D; Prog Biophys Mol Biol 1999, V71, P435 HCAPLUS
(42) Schmucker, D; Cell 2001, V105, P701 HCAPLUS
(43) Shamah, S; Cell 2001, V105, P233 HCAPLUS
(44) Sieg, D; J Cell Sci 1999, V112, P2677 HCAPLUS
(45) Stanzione, R; Lab Invest 2001, V81, P51 HCAPLUS
(46) Torring, N; Anticancer Res 2000, V20, P91 HCAPLUS
(47) Wahl, S; J Cell Biol 2000, V149, P263 HCAPLUS
(48) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(49) Wilkinson, D; Nature Rev Neurosci 2001, V2, P155 HCAPLUS
(50) Yu, H; Oncogene 2001, V20, P3995 HCAPLUS
(51) Zhang, Z; Cell 1996, V85, P61 HCAPLUS
(52) Zhou, F; J Cell Biol 2001, V153, P1071 HCAPLUS
(53) Zisch, A; Oncogene 1998, V16, P2657 HCAPLUS
(54) Zou, J; Proc Natl Acad Sci USA 1999, V96, P13813 HCAPLUS

L40 ANSWER 36 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:392768 HCAPLUS
DN 137:31807
ED Entered STN: 28 May 2002
TI Antibody targeting of the **EphA2 tyrosine kinase** inhibits malignant cell behavior
AU Carles-Kinch, Kelly; Kilpatrick, Katherine E.; Stewart, Jane C.; **Kinch, Michael S.**
CS Dep. Basic Med. Sci., Purdue Univ. Cancer Center, West Lafayette, IN, 47907, USA
SO Cancer Research (**2002**), 62(10), 2840-2847
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 15-3 (Immunochemistry)
AB **EphA2** is a transmembrane **receptor tyrosine kinase** that is up-regulated on many aggressive carcinoma cells. Despite its overexpression, the **EphA2** on malignant cells fails to bind its ligand, **ephrinA1**, which is anchored to the membrane of adjacent cells. Unlike other **receptor kinases**, **EphA2** demonstrates **kinase** activity that is independent of ligand binding. However, ligand binding causes **EphA2** to neg. regulate tumor cell growth and migration. Herein, we translate knowledge of **EphA2** into strategies that selectively target malignant cells. Using a novel approach to preserve extracellular epitopes and optimize antibody diversity, we generated monoclonal antibodies that identify epitopes on the extracellular domain of **EphA2**. **EphA2** antibodies were selected for their abilities to inhibit behaviors that are unique to metastatic cells while minimizing damage to nontransformed cells. A subset of **EphA2** monoclonal antibodies were found to inhibit the soft agar colonization by MDA-MB-231 breast

tumor cells but did not affect monolayer growth by nontransformed MCF-10A breast epithelial cells. These **EphA2** antibodies also prevented tumor cells from forming tubular networks on reconstituted basement membranes, which is a sensitive indicator of metastatic character. Biochem. analyses showed that biol. active antibodies induced **EphA2** phosphorylation and subsequent degradation Antisense-based targeting of **EphA2** similarly inhibited soft agar colonization, suggesting that the antibodies repress malignant behavior by down-regulating **EphA2.** These results suggest an opportunity for antibody-based targeting of the many cancers that overexpress **EphA2.** Our studies also emphasize how tumor-specific cellular behaviors can be exploited to identify and screen potential therapeutic targets.

ST **EphA2 kinase** phosphorylation monoclonal antibody cancer

IT Antibodies and Immunoglobulins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(IgG1, monoclonal; antibody targeting of **EphA2 tyrosine kinase** inhibits malignant cell behavior)

IT Antitumor agents
Cell proliferation
Human
Neoplasm
(antibody targeting of **EphA2 tyrosine kinase** inhibits malignant cell behavior)

IT Phosphorylation, biological
(**protein**; antibody targeting of **EphA2 tyrosine kinase** inhibits malignant cell behavior)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antibody targeting of **EphA2 tyrosine kinase** inhibits malignant cell behavior)

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(2) Bartley, T; Nature (Lond) 1994, V368, P558 HCAPLUS
(3) Bissell, M; Am J Pathol 1999, V155, P675 MEDLINE
(4) Cance, W; Breast Cancer Res Treat 1995, V35, P105 HCAPLUS
(5) Connor, R; Dev Biol 1998, V193, P21 HCAPLUS
(6) Demicheli, R; Ann Oncol 1997, V8, P1075 MEDLINE
(7) Devita, V; Cancer:Principles and Practice of Oncology, 5th Edition 1997, P333
(8) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(9) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(10) Fidler, I; Cancer:Principles and Practice of Oncology, 5th Edition 1997, P135
(11) Frisch, S; Curr Opin Cell Biol 1997, V9, P701 HCAPLUS
(12) Fry, D; Curr Opin Biotechnol 1995, V6, P662 HCAPLUS
(13) Giunciuglio, D; Int J Cancer 1995, V63, P815 HCAPLUS
(14) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(15) Hunter, T; Cell 1997, V88, P333 HCAPLUS
(16) Kilpatrick, K; Hybridoma 1995, V14, P355 HCAPLUS
(17) Kilpatrick, K; Hybridoma 1997, V16, P381 HCAPLUS
(18) Kilpatrick, K; Hybridoma 1998, V17, P569 MEDLINE
(19) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(20) Lawrence, J; World J Urol 1996, V14, P124 MEDLINE
(21) Levitzki, A; Science (Wash DC) 1995, V267, P1782 HCAPLUS
(22) Li, L; J Natl Cancer Inst 1989, V81, P1406 MEDLINE

(23) Malik, R; Biochim Biophys Acta 1996, V1287, P73 HCAPLUS
(24) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(25) Mendelsohn, J; Clin Cancer Res 1997, V3, P2703 HCAPLUS
(26) Miao, H; Nature Cell Biol 2000, V2, P62 HCAPLUS
(27) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(28) Patarca, R; Crit Rev Oncog 1996, V7, P343 HCAPLUS
(29) Pegram, M; J Clin Oncol 1998, V16, P2659 HCAPLUS
(30) Price, J; Breast Cancer Res Treat 1996, V39, P93 MEDLINE
(31) Riethmuller, G; Curr Opin Immunol 1993, V5, P732 MEDLINE
(32) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(33) Ryu, D; Biotechnol Prog 2000, V16, P2 HCAPLUS
(34) Schlessinger, J; Trends Biochem Sci 1988, V13, P443 HCAPLUS
(35) Sliwkowski, M; Semin Oncol 1999, V26, P60 HCAPLUS
(36) Sutherland, R; Immunol Cell Biol 2001, V79, P49 HCAPLUS
(37) Varmus, H; Introduction Cancer Surv 1986, V5, P153 MEDLINE
(38) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(39) Weaver, V; Semin Cancer Biol 1995, V6, P175 HCAPLUS
(40) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(41) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(42) Zhang, R; Invasion Metastasis 1991, V11, P204 MEDLINE

L40 ANSWER 37 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:361208 HCAPLUS
DN 137:91669
ED Entered STN: 15 May 2002
TI Estrogen and Myc negatively regulate expression of the **EphA2 tyrosine kinase**
AU Zelinski, Daniel P.; Zantek, Nicole Dodge; Walker-Daniels, Jennifer; Peters, Mette A.; Taparowsky, Elizabeth J.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, IN, 47907, USA
SO Journal of Cellular Biochemistry (**2002**), 85(4), 714-720
CODEN: JCEBD5; ISSN: 0730-2312
PB Wiley-Liss, Inc.
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB Estrogen **receptor** and c-Myc are frequently overexpressed during breast cancer progression but are downregulated in many aggressive forms of the disease. High levels of the **EphA2 tyrosine kinase** are consistently found in the most aggressive breast cancer cells, and **EphA2** overexpression can increase metastatic potential. We demonstrate, herein, that estrogen and Myc neg. regulate **EphA2** expression in mammary epithelial cells. These data reveal **EphA2** as a downstream target of estrogen and Myc and suggest a mechanism by which estrogen and Myc may regulate breast cancer.
ST estrogen cMYC **EphA2 tyrosine kinase** mammary epithelium cancer
IT Mammary gland, disease
(benign; estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)
IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(c-myc; estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)
IT Mammary gland
(epithelium; estrogen and c-Myc neg. regulate **EphA2**

tyrosine kinase expression in mammary epithelial cells in relation to breast cancer)

IT Human
Mammary gland, neoplasm
(estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)

IT Estrogen **receptors**
Estrogens
mRNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)

IT Epithelium
(mammary; estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)

IT Mammary gland, neoplasm
(metastasis; estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)

IT 50-28-2, 17β-Estradiol, biological studies 10540-29-1, Tamoxifen **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(estrogen and c-Myc neg. regulate **EphA2 tyrosine kinase** expression in mammary epithelial cells in relation to breast cancer)

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(2) Dickson, R; Cancer Treat Res 1992, V61, P249 HCAPLUS
(3) Dickson, R; Hum Cell 1989, V2, P219 MEDLINE
(4) Dohn, M; Oncogene 2001, V20, P6503 HCAPLUS
(5) Dubik, D; Cancer Treat Res 1996, V83, P171 HCAPLUS
(6) Dubik, D; Oncogene 1992, V7, P1587 HCAPLUS
(7) Heaney, M; J Virol 1986, V60, P167 HCAPLUS
(8) Hulka, B; Cancer 1994, V74, P1111 MEDLINE
(9) Jiang, S; J Natl Cancer Inst 1992, V84, P580 HCAPLUS
(10) Jordan, V; J Steroid Biochem Mol Biol 2000, V74, P269 HCAPLUS
(11) Jordan, V; J Toxicol Environ Health 1978, V4, P363 HCAPLUS
(12) Katzenellenbogen, B; J Steroid Biochem Mol Biol 2000, V74, P279 HCAPLUS
(13) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(14) Krylov, D; Curr Top Microbiol Immunol 1997, V224, P169 HCAPLUS
(15) Levenson, A; J Steroid Biochem Mol Biol 1994, V51, P229 HCAPLUS
(16) Macgregor, J; Pharmacol Rev 1998, V50, P151 HCAPLUS
(17) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(18) Osborne, C; Cancer Res 1985, V45, P584 HCAPLUS
(19) Osborne, M; Ann NY Acad Sci 1999, V889, P146 HCAPLUS
(20) Peters, M; Mol Cell Biol 1997, V17, P1037 HCAPLUS
(21) Price, J; Cancer Res 1990, V50, P717 MEDLINE
(22) Rochefort, H; Ciba Found Symp 1995, V191, P254 HCAPLUS
(23) Sambrook, J; Molecular cloning:a laboratory manual 1989
(24) Santos, G; J Biol Chem 1988, V263, P9565 HCAPLUS
(25) Shiu, R; Clin Chem 1993, V39, P353 HCAPLUS
(26) Vladusic, E; Oncol Reports 2000, V7, P157 HCAPLUS
(27) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(28) Yardley, D; Am J Med Sci 2000, V320, P263 MEDLINE
(29) Zajchowski, D; Cancer Res 1993, V53, P5004 HCAPLUS

(30) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(31) Zantek, N; Clin Cancer Res 2001, V7(11), P3640 HCAPLUS
(32) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS

L40 ANSWER 38 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2002:285562** HCAPLUS
DN **137:61578**
ED Entered STN: 17 Apr 2002
TI Expressed gene sets as markers for specific tumors
IN Ramaswamy, Sridhar; Golub, Todd B.; Tamayo, Pablo; Angelo, Michael
PA Whitehead Institute for Biomedical Research, USA; Dana-Farber Cancer Institute, Inc.
SO PCT Int. Appl., 715 pp.
CODEN: PIXXD2
DT Patent
LA English
IC C12Q001-68
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 3, 9, 63
FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002024956	A2	20020328	WO 2001-XB29287	20010919 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
WO 2002024956	A2	20020328	WO 2001-US29287	20010919 <--
WO 2002024956	C1	20030306		
WO 2002024956	A3	20030626		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI US 2000-233534P	P	20000919 <--		
US 2001-278749P	P	20010326 <--		
WO 2001-US29287	W	20010919 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002024956	IC	C12Q001-68
WO 2002024956	ECLA	C12Q001/68M6B <--

AB Sets of genetic markers for specific tumor classes are described, as well as methods of identifying a biol. sample based on these markers. Total RNA was isolated from .apprx.300 human tumor and normal tissue specimens representing 30 individual classes of tumor or normal tissue, and cDNA produced using established mol. biol. protocols was hybridized to two high d. Affymetrix oligonucleotide microarrays (Hu6800FL and Hu35KsubA0). Raw expression data was combined into a master data set containing the expression

values for between 6800 and 16,000 genes expressed by each individual sample. A filter was applied to this data set which only allows those genes expressed at 3-fold above baseline and with an absolute difference in expression value of 100 to pass. By comparing the sets of genes which are expressed specifically in one class of tumor (e.g., pancreatic adenocarcinoma) vs. its accompanying normal tissue (e.g., normal pancreas), sets of genes were determined which are specific to various tumors and their normal tissue counterparts. Also described are diagnostic, prognostic, and therapeutic screening uses for these markers, as well as oligonucleotide arrays comprising these markers. [This abstract record is one of 4 records for this document necessitated by the large number of index entries required to fully index the document and publication system constraints.].

ST gene expression marker tumor diagnosis screening human; bladder tumor gene expression marker; breast tumor gene expression marker; central nervous system tumor gene expression marker; colorectal tumor gene expression marker; endometrial tumor gene expression marker; lung tumor gene expression marker; lymphoma gene expression marker; melanoma gene expression marker; ovarian tumor gene expression marker; pancreas tumor gene expression marker; mesothelioma gene expression marker; prostate tumor gene expression marker; microarray tumor gene expression marker

IT Leukemia
(B-cell, acute; expressed gene sets as markers for specific tumors)

IT Leukemia
(T-cell, acute; expressed gene sets as markers for specific tumors)

IT Leukemia
(acute myelogenous; expressed gene sets as markers for specific tumors)

IT Lung, neoplasm
Mammary gland, neoplasm
Ovary, neoplasm
Pancreas, neoplasm
Prostate gland, neoplasm
(adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Carcinoma
(bladder transitional cell; expressed gene sets as markers for specific tumors)

IT Diagnosis
(cancer; expressed gene sets as markers for specific tumors)

IT Nervous system, neoplasm
(central; expressed gene sets as markers for specific tumors)

IT Carcinoma
Intestine, neoplasm
(colorectal adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Lymphoma
(diffuse large cell; expressed gene sets as markers for specific tumors)

IT Uterus, neoplasm
(endometrium, adenocarcinoma; expressed gene sets as markers for specific tumors)

IT DNA microarray technology
Drug screening
Gene expression profiles, animal
Human
Leukemia
Lymphoma
Melanoma
Tumor markers
(expressed gene sets as markers for specific tumors)

IT mRNA

RL: ANT (Analyte); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(expressed gene sets as markers for specific tumors)

IT Antibodies and Immunoglobulins
RL: ARG (Analytical reagent use); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(expressed gene sets as markers for specific tumors)

IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(expressed gene sets as markers for specific tumors)

IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(immobilized; expressed gene sets as markers for specific tumors)

IT Carcinoma
(mammary adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Lung, neoplasm
(mesothelioma; expressed gene sets as markers for specific tumors)

IT Lymphoma
(nodular; expressed gene sets as markers for specific tumors)

IT Carcinoma
(ovarian adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Carcinoma
(pancreatic adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Susceptibility (genetic)
(prediction of; expressed gene sets as markers for specific tumors)

IT Carcinoma
(prostatic adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Carcinoma
(pulmonary adenocarcinoma; expressed gene sets as markers for specific tumors)

IT Antitumor agents
(screening for; expressed gene sets as markers for specific tumors)

IT Bladder, neoplasm
(transitional cell carcinoma; expressed gene sets as markers for specific tumors)

IT Carcinoma
(uterine endometrial adenocarcinoma; expressed gene sets as markers for specific tumors)

IT 132749-25-8 134117-62-7 135992-27-7, DNA (human clone BS4.0-H/BS1.3-H **protein** HSP 70-Hom gene plus flanks) 136331-58-3 136394-59-7 139045-39-9, DNA (human gene Hox-1.4 **protein** cDNA plus 3'-flank) 139134-78-4, DNA (human clone λhHRC gene HRC coding region plus flanks) 139203-49-9, DNA (human phospholamban cDNA plus flanks) 139736-13-3 139804-53-8 139804-57-2, DNA (human gene CKM) 139804-58-3, DNA (human gene CLG4A) 139804-89-0, GenBank K03008 139805-07-5, DNA (human gene CYP1A2 coding region plus flanks) 139805-40-6 139805-41-7, DNA (human gene ELA1 **protein** cDNA) 139805-69-9 139805-72-4, DNA (human **receptor** FcRIIa cDNA) 139806-14-7, DNA (human gene IGF2) 139806-50-1, GenBank M16594 139806-74-9, DNA (human gene HEXB) 139807-18-4, GenBank M27318 139807-22-0, GenBank M28585 139807-45-7 139808-62-1, DNA (human gene SPN cDNA) 139808-88-1, DNA (human gene MT1F) 139809-28-2 139809-29-3, DNA (human gene MT1G) 139810-17-6, DNA (human gene PLA2A) 139810-28-9, DNA (human gene KLK3 cDNA) 139810-70-1, GenBank M32598 139810-89-2, GenBank M27830 139812-98-9, GenBank M15881 139813-00-6,

DNA (human gene UMPS cDNA) 139835-99-7, DNA (human gene IGHA1) 139837-38-0 139844-11-4 139847-59-9 139847-73-7, DNA (human gene IFN-omega 1) 139848-08-1 139859-21-5 139860-01-8 139868-64-7 139949-30-7 140025-51-0, GenBank M19684 140025-64-5, DNA (human gene CHMR4 plus flanks) 140025-75-8, DNA (human gene ADH1) 140026-58-0, GenBank M32373 140026-61-5, DNA (human clone pTR9 satellite 3) 140026-64-8, DNA (human gene ASL cDNA) 140026-92-2, DNA (human gene GLB1 cDNA) 140027-22-1, GenBank X02176 140027-27-6, DNA (human gene CA1 cDNA) 140027-76-5 140027-81-2 140028-29-1 140028-39-3 140028-48-4 140028-62-2, GenBank X07618 140028-96-2 140029-44-3, DNA (human gene G6PD) 140029-53-4, GenBank M11321 140029-92-1 140030-59-7 140030-63-3, GenBank M16938 140030-71-3, DNA (human gene HRG cDNA) 140031-42-1, GenBank M19169 140031-57-8 140031-79-4 140032-08-2 140032-10-6, GenBank X01059 140032-12-8 140032-40-2 140032-48-0 140032-71-9, DNA (human gene HLA-DQA1 plus flanks) 140032-95-7 140032-98-0 140033-49-4, GenBank M36653 140033-52-9, DNA (human gene OTC cDNA) 140033-98-3, DNA (human gene PGAM2) 140034-15-7 140034-35-1, GenBank M11726 140034-44-2 140034-78-2 140035-05-8 140035-19-4, DNA (human gene ACTA1) 140035-45-6 140035-79-6, GenBank M14158 140035-96-7 140035-99-0 140036-02-8, GenBank J05125 140036-16-4 140036-41-5, DNA (human 284-amino acid **protein** cDNA) 140036-46-0, GenBank M25164 140036-48-2 140036-53-9 140036-68-6, DNA (human **protein** S cDNA plus flanks) 140036-71-1 140048-84-6 140049-62-3, DNA (human adrenodoxin gene) 140049-91-8 140051-02-1, DNA (human gene E2B cDNA) 140063-64-5, DNA (human gene TFPI) 140064-12-6, GenBank M62958 140064-39-7 140065-45-8 140068-34-4 140070-32-2, GenBank X52947 140072-57-7 140072-72-6 140077-15-2, GenBank X17651 140078-75-7, DNA (human gene apoAII) 140078-95-1 140079-19-2 140083-08-5, DNA (human gene CRTM) 140094-77-5, GenBank M76732 140096-68-0, DNA (human gene CTSE) 140098-98-2 140103-00-0 140108-97-0 140274-50-6 140274-61-9, DNA (human gene ZNF32) 140274-81-3, DNA (human gene ALDH1) 140275-48-5 140275-60-1, DNA (human antithrombin III gene) 140275-96-3 140276-25-1 140276-38-6 140276-49-9 140276-56-8, GenBank X02404 140276-67-1 140276-81-9, DNA (human clone F225 gene COL6A2) 140277-11-8 140277-12-9, GenBank M24400 140277-31-2, GenBank L00389 140277-36-7, DNA (human gene CYP11B1) 140278-41-7 140279-53-4, GenBank M14777 140279-66-9, DNA (human gene H19 fragment) 140279-69-2, GenBank X00038 140279-83-0, DNA (human gene GJA1P1 cDNA) 140280-12-2, GenBank X03794 140280-31-5 140280-39-3, DNA (human gene IVD cDNA) 140280-44-0, DNA (human gene IFNA cDNA) 140281-59-0, GenBank M27749 140281-92-1, GenBank J00268 140282-13-9, DNA (human kallikrein cDNA plus flanks) 140282-35-5 140283-19-8, GenBank K01160 140284-23-7, DNA (human gene NF-H) 140284-30-6, DNA (human gene NTF3) 140285-25-2, DNA (human prolactin gene) 140285-35-4, DNA (human gene PRB1 cDNA) 140285-75-2, GenBank X00129 140286-04-0 140286-48-2, DNA (human gene ACADS cDNA) 140286-88-0, DNA (human gene TBG cDNA) 140287-46-3, GenBank M29194 140288-21-7, GenBank J03589 140288-63-7, GenBank M26682 140305-79-9, DNA (human gene TRY2 cDNA) 140306-09-8 140317-35-7 140317-82-4 140318-05-4, DNA (human gene MCC cDNA) 140319-36-4 140319-66-0, GenBank M61855 140323-51-9 140327-31-7, DNA (human gene MGSA plus flanks) 140327-46-4 140327-49-7 140333-31-9 140333-33-1 140333-48-8 140333-60-4 140344-87-2, DNA (human gene HSD11) 140353-02-2 140505-97-1 140506-26-9, DNA (human gene AR plus flanks) 140506-80-5, DNA (human beta-casein cDNA) 140506-84-9, GenBank L00354 140507-62-6, DNA (human gene CLPS cDNA) 140508-14-1, DNA (human gene EL III) 140508-18-5 140508-28-7 140508-69-6, GenBank M16282 140508-84-5 140508-89-0 140508-95-8, DNA (human gene ITGA2B) 140509-48-4 140511-07-5, DNA (human gene inhA) 140511-33-7, DNA (human gene KRT16) 140513-38-8 140514-10-9, GenBank X00540 140517-51-7,

GenBank K03460 140538-69-8, GenBank M24248 140539-49-7, DNA (human gene HIS2 cDNA) 140738-25-6, DNA (human gene ALDOB plus flanks) 140738-69-8 140738-83-6, DNA (human gene ANT1) 140740-69-8 140741-08-8 140741-68-0, GenBank X05309 140741-74-8 140742-53-6 140742-62-7, DNA (human gene FABP2 plus flanks) 140743-10-8, DNA (human metaxin gene fragment) 140743-64-2, DNA (human gene GP1BA) 140743-93-7 140746-12-9 140746-14-1 140746-40-3 140748-05-6, DNA (human prealbumin gene fragment) 140748-26-1 140749-37-7, GenBank M20530 140750-55-6 140750-89-6 140750-96-5 140751-97-9 140752-74-5, DNA (human gene F8VWF) 140787-65-1, DNA (human gene COL2A1) 140793-11-9 140794-60-1, GenBank V00563 140796-14-1 140800-01-7 140800-57-3 140800-71-1 140803-99-2 140810-76-0 140831-29-4, DNA (human gene TFIIE beta cDNA) 140831-43-2 140831-68-1, DNA (human gene CPA3) 140832-44-6 140879-44-3 140956-86-1, DNA (human gene AK1) 140961-11-1, GenBank J03764
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; expressed gene sets as markers for specific tumors)

IT 140961-24-6 140978-74-1, DNA (human gene C4A) 140983-02-4 140983-58-0 140985-40-6, GenBank X51954 140997-58-6 140999-65-1, DNA (human sperm **protein** 10 cDNA) 141010-19-7 141163-75-9 141165-06-2 141657-83-2 141657-84-3, DNA (human gene MRC1) 141659-10-1 141706-30-1 141878-02-6 142318-64-7 142361-75-9 142481-63-8 142789-15-9 142789-30-8 142789-47-7 142830-39-5, DNA (human gene cdk3 **protein kinase** cDNA plus flanks) 142862-45-1 142862-62-2 143001-97-2 143003-24-1, DNA (human clone HG2-3e defensin isoform 5 gene plus flanks) 143003-34-3 143283-35-6, GenBank X64269 143368-19-8 143386-42-9 143388-18-5 143524-15-6, GenBank L00972 143695-13-0, DNA (human epithelin cDNA plus flanks) 143787-32-0 143990-05-0, GenBank X65727 143990-09-4 144014-52-8, DNA (human chromosome X 1872-nucleotide fragment) 144014-55-1, DNA (human gene HOX7 **protein** cDNA plus flanks) 144014-70-0 144531-44-2 144531-47-5 144531-48-6 144531-69-1 144560-13-4 144560-31-6 144560-67-8 144590-74-9 144755-63-5 145405-51-2 145495-59-6 145710-48-1 145711-46-2 145711-50-8, DNA (human connexin 37 cDNA plus flanks) 145734-31-2 145885-48-9 145906-46-3, DNA (human arylsulfatase A cDNA) 145906-60-1 145906-65-6, DNA (human gene MCL1 cDNA) 145906-66-7 145906-68-9 145906-69-0, GenBank X51698 145973-35-9 147190-92-9 147191-78-4 147825-49-8 148086-69-5 148106-92-7 148106-94-9 148253-81-0 148394-74-5 148448-81-1, DNA (human gene GOS8 plus flanks) 148489-51-4 148803-09-2, GenBank X69699 148958-71-8 148958-80-9 149239-81-6 149278-23-9 149309-67-1, DNA (human retinoic acid **receptor** isoform γ7 fragment-specifying) 149318-04-7 149348-71-0 149702-48-7 149738-21-6 149800-67-9 149801-72-9 150003-43-3 150219-16-2 150219-72-0 150219-73-1 150219-97-9, DNA (human clone gES-6 peptide YY gene plus flanks) 150247-53-3 150326-43-5 150421-29-7, DNA (human gene PCK1 plus flanks) 150488-75-8, DNA (human gene C6) 150489-55-7 150498-65-0 150510-74-0 150510-91-1 150574-93-9 150755-01-4 150861-12-4 150861-19-1 150862-92-3 150912-14-4 150946-37-5, GenBank X68994 151210-94-5 151212-76-9 151242-00-1 151279-88-8 151315-23-0, GenBank L23852 151318-00-2 151318-04-6 151319-18-5 151350-66-2 151350-69-5 151430-26-1 151431-95-7 151469-96-4 151470-00-7 151471-49-7 151494-19-8 151550-24-2 151576-51-1 151576-70-4 151576-92-0, DNA (human gene N-cym **protein** cDNA plus flanks) 151580-68-6 151612-44-1 151658-42-3, DNA (human connexin 40 gene plus flanks) 151661-32-4 151784-77-9 152002-67-0 152281-24-8 152283-42-6 152317-60-7 152345-13-6 152345-14-7 152347-85-8, DNA (human gene HRY plus flanks) 152392-99-9 152395-29-4

152412-16-3, DNA (human gene ACT) 152649-01-9 152649-54-2
152652-52-3 153016-86-5 153054-80-9 153054-97-8 153317-44-3
153317-49-8 153378-26-8 153592-40-6 153676-66-5 153768-41-3
153961-88-7 153965-35-6 154209-03-7 154298-73-4 154298-74-5
154610-29-4 154834-82-9 154898-86-9 154899-11-3 154901-48-1
154983-49-0 154996-23-3 154997-64-5 155119-73-6 155120-27-7
155316-75-9 155356-21-1 155458-29-0 155459-85-1 155465-87-5
155483-28-6 155744-38-0 156195-86-7 156224-31-6 156225-25-1,
GenBank D17570 156253-81-5 156584-20-2 156584-21-3 156588-04-4
156652-81-2 156653-52-0 156675-03-5 156678-99-8 156712-17-3
156797-53-4 156830-46-5 156889-18-8 156889-70-2 156889-72-4
156890-31-2, DNA (human gene MSP) 158024-71-6 158086-18-1
158108-72-6 158108-96-4 158127-74-3 158158-57-7 158158-70-4
158159-47-8 158160-23-7 158209-90-6, GenBank U13680 158245-55-7
158246-12-9 158278-53-6 158450-99-8 158480-69-4 158645-88-6
158683-87-5 158683-88-6 158761-48-9 158764-50-2 159069-23-5
159348-11-5 159994-88-4 160020-24-6 160021-32-9 160042-15-9
160075-49-0 160077-60-1 160102-96-5 160104-14-3 160120-60-5
160122-16-7 160220-21-3 160364-89-6 160475-68-3 160475-72-9
160475-73-0 160475-87-6 160864-85-7, DNA (human clone Q1 cDNA)
160897-69-8 160930-90-5 161046-30-6 161048-39-1, GenBank U12622
161072-97-5 161164-15-4 161343-14-2
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; expressed gene sets as markers for specific tumors)
IT 161351-22-0 161413-21-4 161413-23-6 161413-51-0 161413-52-1
161657-05-2 161657-67-6 161784-15-2, DNA (human gene CAMLG cDNA)
162198-09-6 162485-91-8 162527-66-4 162596-05-6 163048-43-9
163199-97-1 163239-69-8 163245-09-8 163246-34-2 163246-42-2
163246-61-5 163247-65-2 163249-81-8 163377-47-7 163792-22-1
163872-84-2, DNA (human gene MIA plus flanks) 163953-69-3, DNA (human gene AVPR1A plus flanks) 164000-06-0 164272-34-8, DNA (human clone pbeta1RT1 cDNA) 164373-62-0 164478-51-7 164478-54-0 164479-07-6
164479-11-2, DNA (human clone PEP11 (RT-PCR) cDNA) 164568-03-0
164598-54-3 164598-61-2 164751-20-6 164843-43-0 164952-31-2
164952-57-2 164953-07-5 164968-01-8 165025-17-2 165148-42-5
165205-99-2 165212-95-3 165296-69-5 165367-11-3 165437-24-1
165471-10-3 165471-19-2 165472-96-8 165473-04-1, DNA (human clone R4) 165474-30-6 165474-49-7 165497-11-0 165500-22-1, DNA (human gene LMO4 autoantigen cDNA) 165567-43-1 165624-09-9, DNA (human clone A23)
165706-55-8 165718-13-8 165765-87-7 165850-77-1 165912-14-1
165981-92-0 166012-39-1 166071-00-7 166136-57-8 166215-00-5
166222-27-1 166224-96-0 166292-03-1 166299-97-4 166349-36-6
166357-11-5, DNA (human alpha s1 casein cDNA) 166357-76-2 166357-81-9, DNA (human LI-cadherin cDNA) 166363-36-6 166416-55-3 166424-16-4
166427-47-0 166428-94-0 166456-53-7 166643-02-3 166840-26-2
166841-75-4, DNA (human DNA-binding **protein** cDNA) 166846-13-5, DNA (human clone c51) 166926-59-6, DNA (human syntaxin 5 cDNA plus flanks) 166926-84-7 167054-46-8 167056-35-1 167176-95-6
167206-77-1, DNA (human cell line TE671 cDNA) 167246-69-7 167519-36-0
167599-64-6 167711-40-2 167711-89-9, DNA (human cell line HL-60, Y-79 cDNA) 167712-54-1 167712-81-4 167713-04-4, DNA (human Hel-N2 cDNA)
167713-42-0 167714-16-1 167714-27-4 167714-31-0 168043-01-4
168312-02-5 168313-53-9 168364-88-3 168374-75-2 168380-68-5
168380-90-3 168381-65-5 168385-98-6 168389-88-6 168437-24-9
168437-64-7 168441-08-5 168444-00-6 168490-70-8 168491-32-5
168493-92-3 168494-73-3 168494-93-7 168512-67-2, GenBank X90579
168514-53-2 168523-60-2 168597-11-3 168601-82-9 168605-05-8
168605-09-2 168654-84-0 168658-56-8 168665-23-4, DNA (human RIG cDNA

plus flanks) 168802-17-3 168857-47-4 168857-68-9 168882-67-5
168929-53-1 168938-52-1 168947-93-1 169023-34-1 169071-49-2
169087-30-3, DNA (human osteopontin gene fragment) 169091-84-3
169629-63-4 169630-52-8 169717-12-8 169733-38-4, DNA (human gene IP)
170274-35-8 170319-36-5 170322-31-3 170335-10-1 170339-03-4
170339-05-6 170402-97-8 170536-78-4 170558-15-3 170592-00-4
170611-55-9 170676-15-0 170778-52-6 170896-07-8 171026-03-2
171091-37-5 171136-58-6 171150-53-1 171152-59-3 171166-35-1
171166-38-4 171212-61-6 171449-28-8 171546-17-1 171639-70-6, DNA
(human gene UNR plus flanks) 171690-41-8 171845-09-3 171845-17-3,
DNA (human cell line KG-1 cDNA) 171845-35-5 171845-37-7, DNA (human
cell line KG-1 cDNA) 171845-41-3, DNA (human cell line KG-1 cDNA)
171871-43-5 171940-42-4, GenBank M29037 172000-16-7 172013-21-7
172013-51-3 172013-60-4 172013-63-7 172131-71-4 172137-40-5
172176-14-6 172177-78-5 172186-02-6 172249-69-3 172380-30-2
172386-39-9 172444-61-0 172447-27-7 172627-97-3 172628-01-2
172640-29-8 172764-79-3 172866-06-7 173003-32-2 173005-29-3,
GenBank U44848 173077-58-2 173124-35-1 173126-01-7 173128-98-8
173130-87-5 173183-19-2 173231-04-4 173233-10-8 173234-86-1,
GenBank D82373 173487-64-4 173573-29-0 173661-84-2 173661-86-4
173708-75-3, DNA (human clone jj1b cDNA) 173753-96-3 173758-66-2, DNA
(human gene HD-6 plus flanks) 173889-20-8 173891-43-5, DNA (human
cadherin 15 cDNA plus flanks) 173891-44-6 173893-06-6 173893-10-2
173968-70-2 174057-07-9 174121-27-8 174124-42-6 174127-56-1
174286-76-1 174287-31-1 174388-39-7 174441-90-8, DNA (human clone
#48ES4 cDNA) 174442-85-4 174478-15-0 174518-29-7 174820-89-4
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 174821-80-8, DNA (human gene MDS1 cDNA) 175001-00-0 175004-10-1, DNA
(human mariner element Hsmar2) 175004-94-1 175007-63-3, DNA (human
gene HNMT exon 6 plus flanks) 175008-17-0 175038-06-9 175040-79-6
175045-42-8 175107-65-0 175108-24-4 175113-05-0, DNA (human gene
pCP-2 cDNA) 175122-87-9 175127-18-1 175129-42-7 175196-96-0, DNA
(human GABAA **receptor** alpha3) 175270-48-1, GenBank U51010
175270-64-1 175270-71-0, GenBank U51711 175299-02-2, DNA (human gene
MKP-2 cDNA) 175381-75-6 175383-02-5 175383-10-5 175383-19-4,
GenBank D83847 175421-00-8 175421-01-9 175515-51-2 175524-88-6
175754-72-0 175828-04-3 175928-92-4 176145-57-6 176183-77-0
176188-90-2 176195-25-8 176339-56-3 176345-91-8 176348-12-2, DNA
(human gene Doc1) 176348-17-7 176355-91-2, GenBank W26769
176356-16-4, GenBank W25869 176359-14-1 176361-43-6 176362-81-5
176363-64-7, GenBank W27176 176393-37-6 176393-77-4, GenBank W26360
176397-59-4 176401-49-3, GenBank W27650 176401-66-4 176402-33-8
176402-72-5 176403-65-9, GenBank W27857 176406-30-7, GenBank W28151
176406-45-4, GenBank W28229 176406-85-2, GenBank W27993 176407-55-9,
GenBank W28252 176416-47-0 176428-38-9 176459-47-5 176464-52-1
176471-15-1 176520-97-1 176591-89-2 176603-67-1 176604-45-8
176613-34-6 176630-28-7 176630-77-6, DNA (human gene AQP5)
176740-71-9 176800-07-0, DNA (human gene RACH1 cDNA) 176883-39-9
177253-81-5 177301-21-2 177305-13-4 177372-86-0 177511-10-3
177630-36-3 177632-12-1 177643-37-7 177644-01-8 177693-62-8
177823-24-4 177823-29-9 177891-87-1 177929-43-0 178010-74-7
178083-79-9 178148-59-9 178148-81-7 178149-57-0 178150-00-0
178188-24-4 178195-02-3 178295-02-8 178295-03-9 178298-60-7
178300-49-7 178410-26-9 178639-38-8 178642-69-8 178642-90-5
178644-08-1 178647-66-0 178653-29-7 178653-38-8 178655-85-1
178658-99-6 178734-25-3 178842-70-1 178848-89-0, DNA (human gene
LIMK1 plus flanks) 178850-44-7 178850-79-8 178850-95-8 178851-16-6

178851-92-8 178852-84-1 178892-10-9 179194-94-6 179227-13-5
179227-53-3 179299-57-1 179308-32-8 179423-99-5 179442-95-6
179443-08-4 179501-27-0 179576-58-0 179582-14-0 179592-96-2
179644-49-6 179645-72-8 179709-58-1 179710-24-8 179719-00-7
179727-11-8 179773-35-4 179773-78-5 179780-03-1 179787-01-0
179790-80-8 179827-57-7 179843-39-1 179955-63-6 179956-88-8, DNA
(human rhodopsin **kinase** cDNA) 179965-66-3 180013-00-7
180015-38-7 180026-61-3 180108-80-9, DNA (human δ-sarcoglycan
cDNA) 180109-04-0 180118-30-3 180121-08-8 180173-27-7
180223-46-5 180228-09-5 180245-62-9 180245-67-4 180245-69-6
180362-85-0 180362-95-2 180375-77-3 180376-08-3 180377-54-2
180379-03-7 180380-57-8 180426-24-8 180446-01-9 180448-36-6, DNA
(human gene KIAA0233 cDNA fragment) 180448-88-8, DNA (human gene
KIAA0240 cDNA fragment) 180452-77-1 180454-95-9 180456-19-3
180456-32-0 180456-65-9 180456-71-7 180459-79-4 180505-81-1
180547-53-9 180549-97-7 180552-01-6 180566-57-8 180604-89-1
180653-54-7 180654-08-4 180654-68-6 180672-28-0, DNA (human clone
161455-2-3 cDNA) 180672-32-6, DNA (human clone W2-6 cDNA) 180674-18-4
180674-69-5 180701-76-2 180752-84-5 180755-70-8 180756-89-2
180762-53-2 180769-47-5 180771-34-0, DNA (human gene CGM2 cDNA)
180882-94-4 180884-37-1, DNA (human clone 80578) 180924-05-4, GenBank
U67614 181087-60-5 181087-79-6 181091-83-8 181095-22-7
181101-34-8 181102-54-5 181105-48-6 181105-75-9, GenBank U68494
181109-06-8, DNA (human imogen 38 cDNA) 181159-60-4 181165-98-0
181168-12-7 181172-09-8 181172-35-0 181196-56-5 181201-49-0
181203-31-6 181254-90-0, DNA (human gene ASML3a cDNA) 181290-25-5
181291-67-8 181320-58-1 181392-46-1 181545-26-6 181555-01-1
181555-18-0 181568-46-7 181613-43-4 181617-56-1 181670-57-5
181687-64-9 181688-54-0 181726-44-3 181861-24-5, DNA (human gene
VASP) 181861-25-6 181909-41-1 181918-38-7 181922-15-6
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 181922-26-9 182099-03-2 182113-82-2 182335-57-5 182342-28-5, DNA
(human clone EST90757 cDNA) 182378-06-9 182391-43-1 182445-45-0
182544-30-5 182589-34-0 182649-02-1, GenBank AA093748 182659-46-7
182667-45-4, GenBank AA095600 182726-09-6 182726-30-3 182736-53-4
182762-41-0, DNA (human cell line KD cDNA) 182774-82-9 182791-83-9
182793-34-6 182858-93-1 182860-63-5 182860-92-0 182911-68-8
182942-52-5 183080-65-1 183100-32-5 183100-37-0 183100-52-9
183100-56-3 183192-26-9, DNA (human cell line Hela clone C3 cDNA)
183329-51-3 183331-35-3 183390-79-6 183390-81-0 183391-54-0
183391-55-1 183453-57-8 183458-20-0 183463-13-0 183631-56-3
183632-34-0 183640-19-9 183644-77-1 183686-19-3 183687-95-8
183693-30-3 183697-65-6 183709-87-7 183753-26-6 183771-66-6
183772-72-7 183773-24-2 183777-80-2 183779-07-9 183781-34-2, DNA
(human gene nbr cDNA) 183820-63-5 183820-77-1 183821-69-4
183823-87-2 183827-60-3 183829-61-0 183842-16-2 183844-41-9
183845-08-1 183976-71-8 183976-79-6 183976-88-7, DNA (human clone
RACE clone A3 cDNA) 183983-92-8 183984-22-7 183984-25-0
183984-37-4 183984-43-2 184054-27-1 184076-34-4 184076-44-6
184136-65-0 184141-74-0 184142-89-0 184145-33-3 184188-09-8
184200-93-9 184208-77-3 184251-20-5 184255-05-8 184261-63-0
184320-57-8 184321-89-9 184322-47-2 184323-85-1 184325-25-5
184329-92-8 184332-16-9 184333-06-0 184333-86-6 184334-25-6
184334-37-0 184339-82-0 184342-71-0 184343-23-5 184381-27-9
184383-01-5 184391-26-2 184398-52-5 184412-45-1 184414-01-5
184501-15-3 184512-11-6 184610-03-5 184611-54-9 184660-11-5, DNA
(human gene GPR23 plus flanks) 184665-25-6 184672-66-0, DNA (human

gene DDR fragment) 184673-20-9 184750-98-9 184753-67-1 184860-63-7
184860-93-3 184862-66-6 184864-12-8 184864-45-7 184974-91-2, DNA
(human gene HXC-26 cDNA) 184976-07-6 185008-36-0 185079-43-0
185080-80-2 185083-60-7 185083-66-3, DNA (human gene RFB30 plus
flanks) 185176-44-7 185179-13-9 185231-24-7, GenBank D17357
185239-96-7 185242-26-6 185243-06-5 185270-20-6 185273-85-2
185277-62-7 185294-66-0 185354-34-1 185359-89-1 185367-32-2
185369-23-7 185370-07-4 185374-59-8 185374-60-1 185374-63-4
185474-11-7 185481-52-1 185634-65-5 185649-22-3 185650-14-0
185665-75-2 185725-38-6 185770-09-6, DNA (human gene DDR3 cDNA)
185770-11-0, GenBank U83600 185773-76-6 185782-56-3 185796-18-3
185835-35-2 185866-67-5 185941-84-8 185973-37-9 186007-73-8
186015-45-2 186017-51-6, DNA (human clone CTA-322B1) 186220-65-5
186226-71-1, DNA (human YF5 cDNA) 186292-18-2 186363-68-8
186363-70-2, DNA (human clone cosmid W12A) 186403-86-1, DNA (human
clone IMAGE:74593 cDNA) 186404-15-9 186445-82-9, DNA (human clone
151B14) 186445-90-9 186445-92-1 186445-94-3 186445-95-4
186487-30-9 186514-41-0 186622-12-8 186626-67-5 186626-84-6
186627-43-0 186628-68-2 186630-43-3 186631-53-8 186631-94-7
186633-74-9 186633-86-3 186637-50-3 186638-06-2 186681-64-1
186786-14-1 186853-21-4 186855-00-5 186858-50-4 186861-17-6
186862-21-5 186862-25-9 186862-73-7 186864-26-6 186867-49-2
186868-08-6 186868-27-9 186868-96-2 186871-37-4 186871-49-8
186872-72-0 186873-06-3 186876-27-7 186876-43-7 186877-98-5
186878-08-0 186878-12-6 186879-33-4 186880-87-5 186881-39-0
186881-94-7 186926-14-7 186930-73-4 186999-64-4 187002-78-4
187192-53-6 187193-78-8 187201-28-1 187202-54-6 187202-57-9
187204-27-9 187310-20-9, DNA (human EST (expressed sequence tag))
187317-03-9 187322-19-6 187363-69-5 187366-15-0 187366-80-9
187366-81-0 187367-20-0 187367-99-3
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 187368-12-3 187368-61-2 187370-83-8 187373-02-0 187375-40-2
187383-99-9 187384-46-9 187384-53-8 187439-06-1 187501-10-6
187501-51-5, DNA (human gene CLDN10 cDNA) 187508-85-6 187508-91-4
187509-94-0 187510-03-8 187511-11-1 187512-24-9 187514-64-3
187515-70-4 187515-95-3 187517-03-9 187517-73-3 187558-47-0
187559-20-2 187560-75-4 187561-20-2 187563-30-0 187565-73-7
187637-02-1 187638-15-9 187646-94-2 187647-01-4 187651-91-8
187767-39-1 187821-70-1 188013-72-1 188089-55-6, DNA (human clone
23574 cDNA) 188089-61-4, DNA (human clone 23652 cDNA) 188089-63-6, DNA
(human clone 23665 cDNA) 188089-64-7, DNA (human clone 23587 cDNA)
188164-01-4 188164-46-7 188169-81-5 188212-32-0 188212-56-8
188218-22-6 188219-78-5, DNA (human gene GCP-2 plus flanks)
188219-95-6, GenBank U90065 188221-65-0 188223-27-0 188223-98-5
188226-28-0 188232-71-5 188236-84-2 188238-49-5 188268-21-5
188268-96-4 188270-08-8 188274-68-2 188275-20-9 188275-44-7
188279-60-9 188280-84-4 188282-76-0 188312-24-5 188312-52-9
188313-12-4 188314-17-2 188314-35-4 188320-52-7 188321-50-8
188337-72-6 188379-53-5 188453-46-5 188455-73-4 188456-18-0
188458-24-4 188460-73-3 188463-48-1 188469-84-3 188470-68-0
188902-60-5 188963-18-0 188963-28-2 188963-39-5 188963-40-8
189123-94-2 189356-93-2, DNA (human villin-like **protein** cDNA)
189357-12-8 189404-82-8 189405-99-0 189409-21-0 189409-23-2
189413-94-3 189417-48-9 189420-63-1 189420-76-6 189422-50-2
189422-72-8 189423-86-7 189428-16-8 189428-91-9 189430-29-3
189430-73-7 189433-53-2 189436-17-7 189436-24-6 189436-25-7
189436-35-9 189463-46-5, DNA (human sarcolipin cDNA plus flanks)

189520-90-9 189605-37-6 189608-25-1 189608-35-3 189708-66-5
189711-23-7 189712-34-3 189714-59-8 189715-43-3 189717-96-2
189724-23-0 189725-80-2 189740-49-6 189772-05-2 189775-04-0, DNA
(human clone 143789 cDNA) 189775-52-8, DNA (human gene ATP2A1 plus gene
ATP2A1) 189776-69-0 189778-15-2 189778-41-4 189787-55-1
189789-83-1 189792-25-4 189803-64-3 189834-17-1 189834-25-1
189837-40-9 189838-31-1 189838-39-9 189900-85-4 189905-42-8
189907-87-7 189910-84-7 189912-32-1 189912-67-2 189914-28-1
189917-18-8 189920-83-0 189920-96-5 189922-29-0 189923-58-8
189968-08-9 189970-13-6 189971-97-9 189973-74-8 189974-10-5
190029-43-7 190030-49-0 190031-22-2 190033-61-5 190036-06-7
190115-84-5 190116-83-7 190116-94-0 190145-63-2 190147-16-1
190155-82-9 190157-23-4 190157-32-5 190162-34-6 190162-68-6
190163-13-4 190171-19-8 190179-81-8 190180-29-1, DNA (human clone
cosGT13) 190427-21-5 190427-42-0 190429-68-6 190478-36-5
190478-50-3 190495-68-2 190497-54-2 190497-65-5 190498-30-7
190500-22-2 190503-71-0 190552-38-6 190556-71-9 190558-67-9
190558-85-1 190563-54-3 190565-67-4 190566-78-0 190571-51-8
190622-42-5 190630-84-3 190631-13-1 190637-75-3 190641-30-6
190641-39-5 190644-75-8 190680-04-7 190682-30-5 190682-50-9
190682-61-2 190683-22-8 190684-22-1 190696-85-6 190696-86-7
190697-19-9 190697-67-7 190698-30-7 190698-73-8 190701-66-7
190816-26-3 190817-63-1 190821-88-6 190822-04-9 190822-05-0
190823-71-3 190825-00-4 190867-20-0 190868-32-7 190868-69-0
190868-77-0 190873-29-1 190875-87-7 190876-69-8 190878-16-1
190882-34-9 190882-69-0 190883-74-0 190894-24-7 190920-39-9, DNA
(human gene FLII) 190920-46-8 190920-95-7, DNA (human P2x purinoceptor
cDNA) 190921-05-2, DNA (human cell line WI-38 cDNA) 190984-65-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)
IT 190987-31-6 190989-34-5 191001-62-4 191004-16-7 191007-62-2
191008-78-3 191009-25-3 191011-45-7 191047-87-7 191048-19-8
191048-28-9 191048-37-0 191071-42-8 191072-62-5 191073-34-4
191073-80-0 191074-44-9 191081-18-2 191081-36-4 191081-56-8
191116-45-7 191117-94-9 191120-11-3 191120-61-3 191121-47-8
191122-84-6 191123-64-5 191125-74-3 191125-91-4 191128-35-5
191132-23-7 191132-84-0 191138-44-0 191140-30-4 191141-51-2
191143-53-0 191144-35-1 191145-30-9 191145-71-8 191146-63-1
191147-28-1 191188-90-6 191190-87-1 191192-59-3 191196-38-0
191198-21-7 191200-90-5 191239-28-8 191240-08-1 191246-78-3
191249-18-0 191257-53-1 191259-52-6 191262-30-3 191263-05-5
191263-09-9 191271-10-0 191292-11-2 191315-69-2 191318-36-2
191366-90-2 191367-08-5 191368-31-7 191373-86-1 191375-78-7
191376-47-3 191378-03-7 191394-60-2 191438-50-3 191439-90-4
191440-26-3 191451-85-1 191458-69-2 191459-25-3 191459-62-8
191629-68-2 191751-48-1, GenBank AA335018 191826-57-0, GenBank
AA340065 191832-60-7, GenBank AA340539 191889-75-5 191897-30-0
191954-08-2 191962-53-5 191968-55-5 191973-52-1, GenBank AA348466
192020-92-1, GenBank AA350030 192143-29-6 192143-49-0 192143-58-1
192143-77-4 192143-87-6 192168-08-4, GenBank AA358147 192175-18-1,
GenBank AA358888 192289-52-4 192304-27-1 192399-66-9, GenBank
AA370353 192416-01-6 192422-64-3 192474-49-0 192498-48-9
192502-25-3 192534-62-6 192563-32-9 192605-62-2, GenBank AA381902
192670-32-9 192856-31-8 192856-45-4, DNA (human clone RP3-452H17)
192955-77-4 192955-99-0 192957-70-3 192958-61-5 192962-55-3
192965-03-0 192966-31-7 192968-09-5 192985-36-7 193028-84-1
193029-18-4 193029-76-4 193030-10-3 193030-13-6 193030-87-4
193033-15-7 193036-65-6 193039-14-4 193039-87-1 193041-33-7

193042-70-5 193043-91-3 193108-03-1 193108-36-0 193110-39-3
193134-75-7, GenBank Y13896 193164-23-7 193164-88-4 193165-82-1
193172-20-2 193174-62-8 193186-20-8 193189-73-0 193191-34-3
193193-11-2 193230-42-1 193235-91-5 193236-42-9 193238-07-2
193238-61-8 193238-89-0 193246-30-9 193246-86-5 193250-38-3
193251-25-1 193257-52-2 193258-30-9 193258-32-1 193261-38-0
193375-10-9 193398-38-8 193449-29-5, GenBank AA299655 193517-28-1
193523-61-4 193579-83-8 193601-30-8 193716-50-6 193732-40-0
193734-60-0 193785-25-0 193865-24-6 193880-28-3 193932-08-0
193933-07-2 193933-75-4 193934-18-8 193934-21-3 193935-95-4
193937-44-9 193942-90-4 193943-27-0 193943-56-5 194004-80-3
194133-39-6 194134-31-1 194136-96-4 194138-47-1 194330-40-0, DNA
(human gene RGS3 cDNA) 194331-29-8, DNA (human cadherin FIB1 cDNA)
194331-30-1, DNA (human cadherin FIB2 cDNA) 194331-31-2, DNA (human
cadherin FIB3 cDNA) 194382-34-8 194514-50-6 194516-36-4
194826-39-6, DNA (human cell line MeWo cDNA) 194882-73-0 194957-26-1,
GenBank U78166 195582-42-4 195651-25-3, DNA (human clone TEB4 TEB4
protein cDNA) 195770-46-8, DNA (human clone GS1-244B22)
196384-20-0 196384-50-6, GenBank Y10505 196384-57-3 196384-59-5
197062-81-0 197064-41-8 197064-75-8 197064-84-9 197064-92-9
197065-38-6 197065-40-0 197105-43-4 197107-15-6 197116-07-7
197117-42-3 197119-22-5 197418-46-5 197420-89-6 197420-97-6
197421-57-1 197426-28-1 197428-92-5 197429-69-9 197429-78-0
197465-46-6 197465-76-2 198385-63-6 198387-76-7 198389-31-0
198389-88-7 198389-97-8 198391-78-5 198393-92-9 198394-41-1
198394-66-0 198395-96-9 252698-52-5 252785-70-9 252787-88-5
252792-10-2
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 252798-44-0, DNA (human gene N-CAM cDNA) 252799-34-1, GenBank S73149
252800-23-0 252804-47-0 252807-38-8, GenBank S76978 252809-30-6,
GenBank S77393 252809-85-1, GenBank S77582 252813-68-6, DNA (human
gene 5-HT2A R) 252813-97-1, DNA (human gene CD4 **receptor** cDNA)
252816-30-1, DNA (human fatty acid synthase cDNA) 252817-22-4, DNA
(human gene CHN cDNA) 252817-43-9, DNA (human gene DCC cDNA)
252818-18-1, GenBank S81083 252818-19-2, DNA (human gene Hs-TBX2 cDNA)
252818-28-3, GenBank S81893 252818-32-9, GenBank S81578 252818-62-5,
DNA (human phosphoglycerate **kinase** cDNA) 252820-17-0
252822-86-9, DNA (human caldecrin precursor) 252823-76-0, DNA (human
gene PRB2) 382735-60-6, DNA (human gene FSHB) 382735-91-3, DNA (human
clone pKH18 cDNA) 382736-10-9, DNA (human gene REN) 382757-02-0, DNA
(human gene IGHA1) 382866-08-2, DNA (human cell line YUSITI cDNA)
383273-66-3, DNA (human gene flt cDNA) 383790-50-9, GenBank S83366
384413-62-1 384414-08-8 384414-72-6, GenBank M22430 384417-34-9
384417-37-2 384419-37-8, DNA (human clone pLJ587 & pLJ663 cDNA)
384419-97-0 384422-15-5, DNA (human annexin II cDNA plus flanks)
384422-32-6, DNA (human gene VCAM1 cDNA) 384423-54-5 384426-75-9
384427-24-1 384429-16-7 384430-09-5 384430-35-7 384431-41-8, DNA
(human coagulation factor X gene) 384433-32-3 384435-50-1, DNA (human
gene YY1 cDNA) 384436-07-1, DNA (human gene PGM1 cDNA) 384437-16-5,
GenBank M85165 384438-97-5 384439-21-8 384439-27-4, DNA (human
cytochrome P-450 cDNA) 384439-32-1 384439-34-3, DNA (human clone pheA4
ans pheA12 cDNA) 384439-65-0, DNA (human gene IFNA plus flanks)
384439-70-7, GenBank M27533 384439-94-5 384439-99-0 384440-01-1
384440-03-3, DNA (human clone P-hL1-15B cDNA) 384440-22-6 384440-29-3,
DNA (human cell line U937 cDNA) 384440-42-0, DNA (human cell line LNCaP
cDNA) 384440-56-6 384440-77-1, DNA (human gene VIP cDNA)
384442-83-5, GenBank X54457 384442-87-9 384443-06-5, DNA (human gene

MAOB cDNA) 384443-41-8, DNA (human clone P1622 cDNA) 384444-54-6, DNA (human gene AK3) 384445-69-6 384447-91-0 384448-74-2 384449-06-3 384449-09-6 384450-64-0 384450-79-7 384450-88-8 384451-01-8 384451-22-3, DNA (human gene CTLA4) 384451-31-4 384451-57-4, DNA (human gene LAMB2 exon 28) 384451-81-4, DNA (human gene MYL2) 384451-96-1, DNA (human gene ITGA2B cDNA) 384452-69-1, DNA (human cell line HEC cDNA) 384453-63-8, DNA (human gene c-fos) 384453-90-1, DNA (human cell line MOLT-4 cDNA) 384454-04-0, GenBank X16666 384454-72-2, DNA (human gene HK1 cDNA) 384455-61-2, DNA (human cystain S cDNA) 384455-81-6 384456-95-5 384457-05-0, DNA (human gene HOX4D) 384457-48-1, DNA (human clone Zn133, Zn102 cDNA) 384458-64-4 384459-95-4, GenBank M33493 384461-61-4, DNA (human clone ADH4:1 & ADH4:2) 384463-34-7, DNA (human cDNA) 384463-43-8, DNA (human strain cell line MKN-7 cDNA) 384463-49-4, DNA (human gene F5 cDNA) 384463-51-8 384463-53-0, DNA (human integrin α5 cDNA) 384463-64-3, DNA (human) 384463-65-4, DNA (human clone pHGST-pi gene GSTP1) 384464-04-4, DNA (human gene PGY1 plus flanks) 384464-19-1 384464-25-9, DNA (human clone 2.72 cDNA) 384465-73-0 384465-75-2 384467-61-2, DNA (human gene LAMB1 cDNA) 384471-52-7, DNA (human gene GCK cDNA) 384471-82-3, DNA (human gene TMOD cDNA) 384473-92-1 384474-61-7, DNA (human gene UQBP) 384474-63-9 384475-32-5, GenBank M73489 384476-29-3 384476-40-8 384476-79-3, DNA (human neurokinin-3 **receptor** cDNA) 384478-07-3, DNA (human isolate p5aA gene ACTN1 cDNA) 384479-92-9, DNA (human cell line ags) 384479-94-1 384480-46-0 384481-30-5, DNA (human gene GATA-2 cDNA) 384481-48-5, DNA (human clone Cosmid TV1) 384483-16-3, DNA (human gene casK cDNA) 384483-98-1, DNA (human C **protein** cDNA) 384484-53-1, DNA (human clone pHH24, pHH15B9 cDNA) 384486-06-0 384487-17-6 384492-73-3 384492-82-4 384493-06-5 384493-08-7 384493-55-4 384494-76-2, DNA (human PC1/PC3) 384496-67-7 384499-19-8 384499-60-9 384504-03-4, DNA (human keratin 13 cDNA plus flanks) 384504-50-1 384506-42-7, DNA (human elafin gene plus flanks) 384508-17-2 384512-40-7, DNA (human clone G9a-4C7 cDNA) 384513-93-3 384514-02-7 384514-61-8, DNA (human zeta-crystallin cDNA) 384515-21-3, DNA (human isolate DKB) 384515-94-0, DNA (human gene pilot cDNA) 384515-96-2 384515-98-4 384517-75-3, DNA (human nucleotide binding **protein**) 384517-86-6 384519-06-6, DNA (human gene XPAC cDNA) 384519-36-2, DNA (human cell line KG-1 cDNA) 384519-38-4 384520-60-9 384522-51-4, DNA (human strain Cytokeratin 17) 384524-37-2, DNA (human gene SHMT2 cDNA) 384528-22-7, DNA (human gene AF-9 cDNA) 384528-83-0 384529-99-1 384530-13-6 384531-47-9, GenBank L19401 384531-83-3, DNA (human thrombospondin-4 cDNA) 384532-04-1, DNA (human gene CFTR) 384537-64-8, DNA (human gene COL18A1 cDNA) 384540-86-7 384543-55-9 384548-32-7, DNA (human gene HGMP07E) 384551-83-1, DNA (human gene p130) 384552-67-4 384553-31-5 384554-99-8, DNA (human cell line KG-1 cDNA) 384555-01-5, DNA (human cell line KG-1 cDNA) 384555-10-6, DNA (human cell line HL-60 cDNA) 384555-26-4 384556-91-6 384556-98-3 384556-99-4 384557-77-1 384558-00-3, GenBank X73029 384559-61-9 384560-32-1, DNA (human glucose-6-phosphatase cDNA) 384563-19-3, DNA (human PACAP **receptor** cDNA) 384565-37-1 384566-95-4 384567-23-1, GenBank X71135 384571-58-8, DNA (human cell line Caco-2 cDNA) 384572-58-1 384578-62-5, DNA (human cell line KG-1 cDNA) 384579-90-2 384583-49-7, DNA (human clone K1) 384583-79-3 384584-68-3 384585-25-5 384585-50-6, DNA (human clone hek1, hek3, hek5 cDNA) 384586-34-9 384586-53-2 384587-02-4, DNA (human clone h20B1) 384587-72-8, DNA (human clone LUCA-1 cDNA) 384588-08-3, DNA (human isolate patient MZ2) 384588-16-3, DNA (human isolate patient MZ2) 384588-39-0 384589-23-5 384589-73-5, DNA (human cell line keratinocytes cDNA) 384591-52-0 384592-16-9, DNA (human gene hOC-2 cDNA) 384593-14-0 384593-83-3, DNA (human gene GPR1) 384599-49-9

384602-52-2 384608-09-7, DNA (human gene FUT2) 384608-55-3
384612-79-7 384612-83-3, DNA (human gene TRADD cDNA) 384614-14-6
384619-85-6, DNA (human clone apM1 cDNA) 384619-95-8 384620-48-8, DNA
(human PRK2 cDNA) 384620-80-8 384621-38-9, DNA (human cell line
MZ2-MEL.43 cDNA) 384626-89-5 384627-00-3 384627-10-5, DNA (human
clone S171 cDNA) 384631-27-0 384631-30-5, DNA (human clone F-T03796
cDNA) 384631-48-5, DNA (human cell line KG-1 cDNA) 384633-60-7
384640-80-6 384640-82-8 384647-11-4 384648-77-5, DNA (human cell
line LB33-MEL.A-1) 384649-87-0, DNA (human gene NPM-MLF1 cDNA)
384650-74-2, DNA (human gene mat1 cDNA) 384653-03-6 384653-31-0
384653-54-7 384653-65-0
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 384655-21-4, DNA (human gene MIHB cDNA) 384655-55-4 384655-92-9, DNA
(human gene PDE1A cDNA) 384657-76-5 384657-95-8 384662-97-9, DNA
(human mammaglobin cDNA) 384664-52-2, DNA (human gene FRDA)
384664-90-8 384667-57-6, GenBank U50822 384681-06-5 384681-35-0
384683-28-7, DNA (human PRSM1 cDNA) 384686-54-8 384689-33-2
384690-93-1, DNA (human p38Beta MAP **kinase** cDNA) 384691-45-6
384691-51-4, DNA (human cell line LNCaP cDNA) 384693-02-1, DNA (human
cell line KG-1 cDNA) 384693-58-7, DNA (human gene TCTEL1 cDNA)
384695-06-1 384695-13-0, DNA (human clone 27G4 cDNA) 384695-15-2, DNA
(human gene CMKBR5) 384695-17-4, DNA (human cell line HaCaT cDNA)
384696-51-9 384698-02-6, DNA (human gene GPR19) 384726-43-6, DNA
(human gene bbc6 cDNA) 384726-68-5, DNA (human hGATA-6 cDNA)
384728-11-4 384728-15-8 384728-56-7 384729-16-2 384731-22-0,
GenBank D84290 384733-15-7 384735-58-4 384746-66-1, DNA (human
gravin) 384747-60-8 384748-30-5 384748-92-9 384749-88-6, DNA
(human clone H361 cDNA) 384750-18-9, DNA (human gene hTcf-4 cDNA)
384750-36-1 384762-33-8 384763-37-5, DNA (human gene hsReq)
384765-62-2, DNA (human clone hg00111s1 cDNA) 384765-71-3, DNA (human
clone HG1015 cDNA) 384766-18-1, DNA (human 15S-lipoxygenase cDNA)
384767-18-4 384770-11-0 384779-95-7, DNA (human clone GS3340 cDNA)
384780-42-1 384976-11-8, DNA (human clone 1292. cDNA) 384976-21-0
384976-57-2 384976-60-7, DNA (human gene H-plk cDNA) 384976-62-9, DNA
(human gene IFNAR cDNA) 384976-87-8, DNA (human cell line HL60 clone c5
) 384976-91-4, DNA (human clone 4X.3) 384977-16-6, DNA (human gene
TRY1 cDNA) 384977-21-3 384977-23-5, DNA (human gene B12 cDNA)
384977-30-4 384977-66-6 384977-70-2 384978-09-0, DNA (human gene MUT
cDNA) 384979-34-4 384983-76-0 384986-45-2 384997-12-0
384997-93-7, DNA (human carboxypeptidase a cDNA) 384998-64-5
385011-13-2 385027-38-3, DNA (human gene ASP cDNA) 385027-63-4
385028-04-6 385032-56-4 385038-39-1 385042-35-3 385043-25-4
385043-57-2 385052-66-4, DNA (human acyl-CoA dehydrogenase cDNA)
385074-83-9, DNA (human gene DTK cDNA) 385079-81-2 385081-26-5, DNA
(human gene PCOLCE cDNA) 385082-06-4, DNA (human clone FL-2 cDNA)
385086-18-0, DNA (human gene CD39 cDNA) 385089-95-2, DNA (human clone
HHH4 gene IHH cDNA) 385090-26-6, DNA (human clone hKvBeta3 cDNA)
385091-52-1, DNA (human clone phPCaR-5.2 cDNA) 385092-31-9 385093-03-8
385093-04-9 385097-61-0 385100-02-7 385101-13-3, DNA (human BA46
cDNA) 385101-77-9, DNA (human E2F-5 cDNA) 385101-84-8, DNA (human
clone RA337M, GS4642 cDNA) 385102-06-7, DNA (human CLPP cDNA)
385105-64-6 385106-71-8, DNA (human clone SB2 cDNA) 386563-36-6,
GenBank S77415 389173-70-0 389174-60-1 389175-19-3, DNA (human gene
M1S1) 389176-63-0, DNA (human cell line A431 cDNA) 389179-81-1
389179-82-2 389179-85-5 389179-86-6 389179-90-2 389179-95-7, DNA
(human gene COL5A2) 389180-03-4 389180-06-7, GenBank X05345
389180-07-8, DNA (human gene HPX) 389180-28-3, GenBank J05252

389180-41-0 389180-49-8 389180-50-1 389180-95-4, DNA (human gene MAOA cDNA) 389181-47-9, DNA (human clone cos TCFP-HPV-3) 389181-48-0, DNA (human gene SAP-1 cDNA) 389181-81-1, GenBank X03350 389181-84-4 389181-86-6, DNA (human clone HL-14 cDNA) 389181-87-7 389181-95-7, DNA (human gene C1R cDNA) 389181-98-0 389182-00-7, DNA (human CENP-B cDNA) 389182-03-0 389182-21-2, DNA (human 1207-amino acid **protein** cDNA) 389182-22-3 389182-31-4 389182-39-2, GenBank M34309 389182-46-1 389182-62-1, GenBank M26041 389182-65-4 389182-73-4 389182-88-1, GenBank M13231 389182-90-5 389182-94-9 389182-95-0, GenBank M11749 389182-98-3, DNA (human cell line HT29 cDNA) 389183-42-0, DNA (human gene HPF2 cDNA) 389183-54-4, DNA (human clone pSK-hB(c1) cDNA) 389183-57-7, DNA (human gene AHCY cDNA) 389183-59-9, DNA (human gene CTSD plus flanks) 389183-86-2 389183-99-7, DNA (human clone CD8-beta.1 cDNA) 389184-02-5, DNA (human clone F225 cDNA) 389184-04-7, GenBank Y07512 389184-05-8 389184-15-0 389184-28-5, DNA (human gene HOX3D) 389184-39-8, DNA (human gene CD59) 389184-61-6, DNA (human clone HACTSG-112) 389184-63-8 389184-64-9 389184-65-0, DNA (human clone pHAIVG[5.1,5.2]) 389184-66-1 389184-73-0, DNA (human gene HEXA) 389184-77-4, DNA (human gene C7 cDNA) 389184-84-3, DNA (human gene CYB5 cytochrome b5 cDNA) 389184-87-6, DNA (human gene CST3) 389184-90-1 389184-94-5, DNA (human gene FGB cDNA) 389185-20-0 389185-25-5, DNA (human clone pHMCH2 cDNA) 389185-38-0, DNA (human gene OAT) 389185-40-4, DNA (human cell line HPAF-CD11 cDNA) 389185-43-7, DNA (human gene PDGFA) 389185-55-1 389185-66-4 389185-72-2 389186-21-4, DNA (human cell line GM3299; GM637 cDNA) 389186-38-3, DNA (human clone 5.1, 9.2, 9J cDNA) 389186-51-0 389186-69-0, DNA (human clone D1 cDNA) 389186-93-0, DNA (human gene CGB cDNA) 389189-06-4, DNA (human gene APOA1 plus gene APOC3) 389189-13-3 389189-14-4 **389189-17-7** 389189-18-8, DNA (human gene F8C cDNA) 389189-25-7, DNA (human gene CTLA1) 389189-26-8 389189-60-0, GenBank M21064 389189-61-1, GenBank M31013 389189-65-5 389189-69-9, DNA (human gene reg plus flanks) 389189-81-5, DNA (human gene TGFB1 cDNA) 389189-82-6, DNA (human gene uPA plus flanks) 389189-83-7, DNA (human gene VDR) 389190-15-2 389190-55-0, DNA (human gene VCAM1) 389190-70-9, DNA (human clone ccg1p cDNA) 389190-72-1, DNA (human cyclin cDNA) 389190-74-3, DNA (human gene LGALS2) 389190-79-8, DNA (human cystatin S cDNA plus flanks) 389190-97-0, DNA (human gene DMD cDNA) 389191-21-3, DNA (human gene EDN1) 389191-82-6 389191-93-9 389192-40-9, DNA (human pyruvate **kinase** gene) 389192-44-3 389192-47-6, DNA (human gene cysteine-richprotein) 389192-77-2 389193-51-5 389195-95-3, DNA (human gene GSTM5 cDNA) 389196-47-8 389200-09-3 389200-11-7, DNA (human clone CENPE cDNA) 389200-16-2, GenBank X02875 389200-44-6 389200-61-7, DNA (human **receptor** TR3 cDNA) 389200-80-0 389202-86-2, DNA (human cell line CRL-1262 cDNA) 389203-61-6, DNA (human clone pP1-3, pP1-8 cDNA) 389203-74-1 389204-43-7 389204-60-8, DNA (human clone RES4-4 cDNA) 389205-56-5, DNA (human gene GLUR5 cDNA) 389206-66-0 389208-34-8 389209-27-2, DNA (human gene X104 cDNA) 389210-70-2 389210-89-3 389212-46-8 389214-42-0, DNA (human clone HRGR1-2 cDNA) 389217-81-6 389217-93-0, DNA (human unknown cDNA) 389220-22-8 389231-42-9, DNA (human clone cosmid 4.10) 389233-90-3 389234-19-9 389234-77-9 389234-85-9 389243-13-4, DNA (human clone HPEPT1 cDNA) 389243-20-3, DNA (human clone 14 cDNA)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; expressed gene sets as markers for specific tumors)

IT 389259-07-8 389261-10-3 389278-87-9, DNA (human Snf2-b gene cDNA plus flanks) 389278-90-4, DNA (human clone S240ii117/zap112 cDNA) 389283-46-9, GenBank U33202 389283-47-0 389297-61-4, DNA (human clone

ph3b7) 389299-59-6 389308-01-4, DNA (human isolate Germany cDNA) 389310-50-3 389311-33-5 389316-25-0, DNA (human gene SSAT plus flanks) 389316-69-2, DNA (human clone hVH-5 cDNA) 389317-49-1, DNA (human clone HPG Ca 5.1 cDNA) 389322-16-1, DNA (human clone x61 cDNA) 389322-17-2 389323-32-4 389330-22-7 389331-49-1, DNA (human gene CCK-A) 389331-81-1 389332-59-6, DNA (human cell line G2 cDNA) 389334-78-5 389335-64-2, DNA (human GPR-9-6 gene) 389336-58-7 389340-64-1 389341-59-7 389342-02-3 389346-64-9 389346-96-7 389350-71-4 389355-49-1 389355-89-9 389358-75-2 389358-86-5 389359-76-6 389361-42-6 389361-66-4 389361-87-9 389362-45-2 389363-92-2 389364-11-8 389365-23-5 389365-91-7 389369-12-4, DNA (human cell line 5583-S cDNA) 389370-55-2 389371-19-1 389374-57-6 389375-30-8, DNA (human gene ARS) 389375-84-2 389376-31-2, DNA (human gene HRR-1 cDNA) 389376-99-2 389378-60-3 389382-78-9 389386-87-2, DNA (human MAP **kinase kinase** MEK5b cDNA) 389393-68-4 389395-41-9 389396-06-9 389398-07-6 389398-09-8 389399-94-4 389400-17-3 389405-04-3 389405-38-3 389406-79-5 389407-07-2 389408-31-5 389409-36-3 389409-47-6 389410-70-2 389412-14-0 389416-85-7 389422-93-9 389423-18-1 389423-40-9, DNA (human clone RP3-453A3) 389424-20-8 389425-17-6 389428-51-7 389429-86-1, DNA (human calponin cDNA) 389430-45-9 389430-49-3 389432-09-1 389435-18-1 389440-10-2 389440-92-0 389443-42-9 389445-40-3 389445-50-5 389446-70-2 389447-25-0 389447-86-3 389448-05-9 389460-85-9 389461-02-3 389464-31-7, DNA (human gene EXTL2 cDNA) 389464-68-0 389464-77-1 389465-06-9 389472-07-5 389473-43-2 389473-73-8 389473-74-9 389479-72-5 389480-33-5 389481-01-0 389481-42-9 389481-47-4 389481-56-5 389481-59-8 389482-66-0 389484-22-4 389485-84-1 389486-04-8 389494-80-8 389497-95-4 389498-02-6 389499-40-5 389505-00-4 389506-23-4 389506-68-7 389506-96-1 389507-94-2 389509-41-5 389509-52-8, DNA (human clone MU1 cDNA) 389509-76-6 389512-70-3 389513-27-3 389514-04-9 389514-27-6 389515-91-7 389515-97-3 389520-98-3 389522-61-6 389540-48-1 389542-93-2 389543-23-1 389544-47-2 389544-49-4 389547-87-9 389547-95-9 389548-22-5 389549-01-3 389550-58-7 389551-99-9 389552-22-1 389554-54-5 389554-67-0 389555-50-4 389555-89-9 389556-47-2 389557-31-7 389562-01-0 389564-59-4, DNA (human gene hCTR2 cDNA) 389695-14-1 389699-60-9 389699-75-6 389721-97-5 390187-80-1 390188-17-7, DNA (human gene ArgRS cDNA) 391523-46-9, DNA (human gene CD9 cDNA) 391524-31-5, DNA (human cell line HT29 cDNA) 391524-68-8, DNA (human gene PI cDNA) 391524-69-9, DNA (human α-actin cDNA plus flanks) 391524-76-8 391524-78-0 391524-80-4, DNA (human gene CLG1 cDNA) 391524-97-3 391524-99-5 391525-02-3 391525-12-5 391525-13-6 391525-15-8 391525-31-8, DNA (human gene NMOR2 cDNA) 391525-32-9 391525-34-1, DNA (human plus gene rps24 cDNA) 391525-35-2, GenBank M25756 391525-36-3 391525-37-4, GenBank M19888 391525-38-5 391525-41-0 391525-60-3, DNA (human cell line HL-60 cDNA) 391525-65-8 391525-71-6 391525-76-1 391525-77-2 391525-79-4 391525-90-9, DNA (human gene ddc cDNA) 391525-91-0 391525-97-6, DNA (human gene CHMR5 gene plus flanks) 391526-01-5 391526-23-1 391526-32-2, GenBank M29877 391526-34-4 391526-39-9 391526-47-9 391526-51-5, DNA (human cell line W38 and U2-OS cDNA) 391526-52-6 391526-54-8, DNA (human gene CEA cDNA) 391526-60-6 391526-62-8, GenBank X07438 391526-66-2, DNA (human gene CTSE cDNA) 391526-67-3 391526-68-4, DNA (human gene QDPR cDNA) 391526-73-1 391526-80-0 391526-85-5, DNA (human gene GLUD1) 391526-88-8 391526-91-3 391526-98-0 391526-99-1, DNA (human gene SCYA1) 391527-01-8, DNA (human interferon-α 6 gene) 391527-02-9, GenBank X02956 391527-13-2 391527-14-3 391527-20-1 391527-26-7 391527-29-0, DNA (human gene LYZ cDNA) 391527-30-3, DNA (human gene LYZ cDNA) 391527-35-8 391527-37-0, DNA (human gene NMOR1 cDNA)

391527-46-1 391527-47-2 391527-56-3, DNA (human gelsolin cDNA plus flanks) 391527-57-4 391527-58-5 391527-68-7, GenBank M24486 391527-69-8 391527-72-3 391527-81-4 391527-87-0 391528-05-5 391528-06-6 391528-10-2 391528-16-8 391528-20-4, DNA (human gene FAH cDNA) 391528-22-6, DNA (human gene TRPM-2 exons 7-9) 391528-33-9 391528-38-4
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; expressed gene sets as markers for specific tumors)

IT 391528-40-8, DNA (human cell line HeLa clone F6 cDNA) 391528-52-2 391528-54-4 391528-68-0, DNA (human gene PMP1 cDNA) 391528-70-4, DNA (human gene p78 cDNA) 391528-75-9 391528-90-8, DNA (human IgG) 391528-92-0, DNA (human P-cadherin cDNA plus flanks) 391529-03-6, DNA (human clone p-lambda-H6-7 cDNA) 391529-04-7 391529-06-9, DNA (human gene ACTB plus flanks) 391529-09-2, DNA (human clone pTF. gene ADRB2 cDNA) 391529-12-7 391529-13-8, DNA (human gene CLTA cDNA) 391529-20-7 391529-41-2 391529-46-7 391529-51-4 391529-52-5 391529-72-9, DNA (human gene MGMT **protein** cDNA) 391529-91-2 391529-96-7, DNA (human gene RBP1 cDNA) 391529-99-0 391530-24-8 391530-32-8 391530-34-0 391530-42-0 391530-80-6 391530-83-9, DNA (human cell line Hs68 cDNA) 391530-84-0, DNA (human iron regulatory factor) 391530-92-0 391531-06-9, DNA (human gene DBI **protein** cDNA) 391531-14-9, DNA (human gene IGHG3 cDNA) 391531-19-4, GenBank M21054 391531-23-0, DNA (human clone lambda TI-C1 cDNA) 391531-30-9 391531-32-1, DNA (human clone pCOX7.183) 391532-11-9 391532-25-5, DNA (human gene COL1A2 cDNA) 391532-26-6 391532-27-7 391532-29-9, DNA (human gene c-yes-1 **protein** cDNA) 391532-46-0, DNA (human serine protease gene) 391532-48-2 391532-53-9, DNA (human clone M1-M5 and B1-B4 cDNA) 391532-55-1, DNA (human gene VCL **protein** cDNA) 391532-66-4 391532-68-6 391532-69-7 391532-74-4 391532-75-5 391533-05-4 391533-20-3 391533-21-4 391533-27-0, DNA (human gene K-sam-I) 391533-29-2, DNA (human gene CTSS cDNA) 391533-31-6, DNA (human desmin gene) 391533-33-8, DNA (human gene IGFBP3) 391533-36-1 391533-50-9, DNA (human gene FMO2 cDNA) 391533-71-4 391533-80-5, DNA (human gene PLAT) 391533-87-2 391534-11-5 391534-13-7 391534-20-6 391534-28-4, DNA (human mevalonate **kinase** cDNA) 391534-43-3 391534-46-6 391534-62-6 391534-72-8 391534-87-5, DNA (human serum **protein** cDNA) 391534-93-3, DNA (human gene MK) 391534-95-5, DNA (human clone C328-10 cDNA) 391535-13-0, DNA (human cell line T47D cDNA) 391535-29-8 391535-52-7 391535-66-3 391535-84-5 391535-88-9 391536-06-4, DNA (human cell line BJA cDNA) 391536-08-6 391536-09-7, DNA (human cell line B5/589 cDNA) 391536-12-2, DNA (human gene MYL5 cDNA) 391536-19-9, DNA (human transcription activator cDNA) 391536-20-2, DNA (human gene TLE1 cDNA) 391536-22-4 391536-35-9 391536-65-5, DNA (human immunophilin cDNA) 391536-66-6 391536-67-7, DNA (human gene PLOD cDNA) 391536-73-5, DNA (human gene RPL37A cDNA) 391537-03-4, DNA (human gene NPYY1 cDNA) 391537-19-2 391537-21-6 391537-41-0 391537-47-6 391537-48-7 391538-38-8 391538-40-2 391538-41-3 391538-55-9 391538-96-8 391538-98-0 391539-19-8 391539-22-3 391539-25-6, DNA (human cell line Hela clone HL-27) 391539-32-5 391539-44-9 391539-59-6 391539-63-2 391539-74-5, DNA (human cell line KB cell line cDNA) 391539-84-7 391539-90-5, DNA (human cell line KG-1 cDNA) 391539-94-9, DNA (human cell line KG-1 cDNA) 391540-03-7 391540-05-9, DNA (human cell line KG-1 cDNA) 391540-08-2, DNA (human cell line KG-1 cDNA) 391540-09-3, DNA (human cell line KG-1 cDNA) 391540-13-9, DNA (human cell line KG-1 cDNA) 391540-14-0, DNA (human cell line KG-1 cDNA) 391540-35-5 391540-39-9 391540-52-6 391540-55-9 391540-62-8 391540-73-1, DNA (human Mel-18 **protein** cDNA) 391540-89-9, DNA (human protocadherin 42 cDNA) 391541-10-9, DNA

(human gene GRK5 cDNA) 391541-27-8 391541-33-6 391541-38-1, DNA (human cell line THP-1 cDNA) 391541-39-2 391541-65-4 391541-70-1 391541-71-2, DNA (human cell line HeLa S3 cDNA) 391541-80-3, DNA (human gene CAST cDNA) 391541-96-1 391542-02-2, DNA (human gene PPP3CA cDNA) 391542-07-7 391542-12-4, DNA (human cell line Namalva cDNA) 391542-21-5, DNA (human clone S100D cDNA) 391542-28-2, DNA (human kinesin light chain cDNA) 391542-40-8, DNA (human gene MIF) 391542-58-8, DNA (human clone pKOT158 cDNA) 391542-60-2, DNA (human fibrillin cDNA) 391542-61-3 391542-96-4, DNA (human surfactant **protein** A cDNA) 391542-98-6, DNA (human gene GPI-H cDNA) 391543-01-4 391543-06-9 391543-17-2, DNA (human gene ADORA1 cDNA) 391543-62-7 391543-76-3 391543-79-6 391543-86-5, DNA (human gene DAG1 cDNA) 391543-95-6, DNA (human A2b adenosine **receptor** cDNA) 391544-00-6 391544-09-5 391544-19-7 391544-21-1, DNA (human I-plastin cDNA) 391544-24-4 391544-30-2 391544-39-1 391544-42-6 391544-47-1 391544-59-5 391544-70-0 391544-74-4, DNA (human cell line HeLa cells) 391544-80-2, DNA (human clone pHPM11 cDNA) 391544-83-5 391544-90-4, DNA (human prolylcarboxypeptidase cDNA) 391545-00-9 391545-03-2 391545-12-3 391545-13-4 391545-15-6 391545-16-7 391545-18-9 391545-20-3 391545-23-6 391545-41-8, DNA (human gene MC5R) 391545-44-1, DNA (human cell line KG-1 cDNA) 391545-45-2 391545-46-3, DNA (human cell line KG-1 cDNA) 391545-47-4, DNA (human clone PO2ST9 cDNA) 391545-58-7, DNA (human cell line KG-1 cDNA) 391545-62-3 391545-64-5, DNA (human 5T4 oncofetal antigen) 391545-65-6 391545-67-8, DNA (human cell line KG-1 cDNA) 391545-96-3 391545-97-4 391546-08-0, DNA (human **protein kinase** C mu cDNA) 391546-20-6, DNA (human cell line HL60 cDNA) 391546-29-5, DNA (human caltractin cDNA) 391546-48-8, GenBank L25880 391546-58-0 391546-63-7, DNA (human cell line Molt4 cDNA) 391546-64-8, DNA (human histidase cDNA) 391546-77-3 391546-78-4 391546-79-5, DNA (human gene EHHADH cDNA) 391546-82-0 391546-86-4 391546-87-5, DNA (human Na+ channel **protein** cDNA) 391546-90-0, DNA (human cell line KG-1 cDNA) 391546-94-4 391546-98-8 391547-09-4, DNA (human gene garp cDNA) 391547-50-5 391547-51-6, DNA (human 56K autoantigen cDNA) 391547-60-7 391547-70-9, DNA (human BST-2 cDNA) 391547-83-4, DNA (human clone Lambda GS2-1 cDNA) 391547-88-9, DNA (human clone 2004-1407) 391547-92-5 391548-04-2, DNA (human gene ARL3 cDNA) 391548-10-0 391548-22-4 391548-27-9 391548-28-0, DNA (human cell line KATO-III cDNA) 391548-59-7 391548-61-1 391548-89-3, DNA (human gene CAT cDNA) 391549-05-6, GenBank X69920 391549-19-2, DNA (human isolate Japanese cDNA) 391549-25-0 391549-33-0 391549-55-6, GenBank D29675 391549-62-5, DNA (human cell line KG-1 cDNA) 391549-78-3, DNA (human cell line Raji DAD-1 cDNA) 391549-81-8, DNA (human gene NNMT cDNA) 391549-83-0, DNA (human ORF cDNA) 391549-87-4 391549-91-0 391549-96-5

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(nucleotide sequence; expressed gene sets as markers for specific tumors)

IT 391550-24-6 391550-26-8 391550-27-9 391550-28-0, DNA (human cell line KG-1 cDNA) 391550-29-1, DNA (human cell line KG-1 cDNA) 391550-40-6 391550-44-0, DNA (human gene mig-2 plus 3'-flank) 391550-50-8 391550-54-2, DNA (human cell line KG-1 cDNA) 391550-59-7, DNA (human GP36b glycoprotein cDNA) 391550-73-5 391550-75-7 391551-01-2 391551-07-8, DNA (human clone clone 270-4 cDNA) 391551-36-3 391551-43-2, DNA (human cell line Hela S3 cDNA) 391551-54-5 391551-56-7 391551-91-0, DNA (human oviductal glycoprotein cDNA) 391552-21-9, DNA (human gene Eps8 cDNA) 391552-25-3 391552-27-5, DNA (human Csa-19 cDNA) 391552-40-2 391553-02-9 391553-41-6 391553-58-5 391553-66-5 391553-67-6, DNA (human gene

HEK8 cDNA) 391553-75-6, DNA (human cdc27 gene) 391553-79-0 391553-88-1, DNA (human myosin-IC) 391554-14-6, DNA (human clone MN1 cDNA) 391554-19-1 391554-21-5, DNA (human gene BNIP3 cDNA) 391554-24-8 391554-27-1, DNA (human cell line KG-1 cDNA) 391554-32-8, DNA (human cell line KG-1 cDNA) 391554-37-3, DNA (human cell line KG-1 cDNA) 391554-44-2, DNA (human cell line COLO 205 cDNA) 391554-68-0 391554-86-2 391554-91-9 391555-10-5, DNA (human gene CRALBP) 391555-28-5, DNA (human clone pKOT161 cDNA) 391555-29-6 391555-44-5 391555-46-7, DNA (human cell line KG-1 cDNA) 391555-48-9 391555-49-0, DNA (human cell line KG-1 cDNA) 391555-51-4, DNA (human cell line KG-1 cDNA) 391555-54-7, DNA (human cell line KG-1 cDNA) 391555-55-8, DNA (human clone pcDNA.HS.2 cDNA) 391556-64-2 391556-66-4, DNA (human clone Lutheran) 391556-73-3, DNA (human clone pG77-12 cDNA) 391556-78-8, DNA (human gene TROP-2) 391556-81-3 391556-87-9 391556-92-6, DNA (human gene ANK-3 cDNA) 391556-93-7 391556-94-8, DNA (human clone G to O cDNA) 391557-06-5, DNA (human initiation factor 2 cDNA) 391557-07-6 391557-48-5, DNA (human SURF-1 cDNA) 391557-52-1 391557-62-3, DNA (human gene E2F-4 cDNA) 391557-77-0 391557-91-8, DNA (human gene CPT1) 391560-53-5 391560-56-8 391560-64-8, DNA (human clone hTg737 cDNA) 391560-81-9, GenBank X82279 391562-13-3 391564-21-9, DNA (human clone 3-5 & 7-1) 391564-47-9, DNA (human paxillin cDNA) 391565-14-3 391566-19-1 391566-25-9 391568-60-8, DNA (human gene CYP51) 391569-13-4 391569-19-0, DNA (human gene MORT1 cDNA) 391569-86-1, DNA (human clone pHSMP6 SMP-30 cDNA) 391570-28-8 391570-76-6 391571-54-3 391571-60-1, DNA (human clone B1-T1 cDNA) 391575-76-1 391576-13-9, DNA (human casein **kinase** I-epsilon cDNA) 391576-47-9 391581-29-6 391581-46-7 391581-52-5 391581-56-9, DNA (human prostasin cDNA plus flanks) 391581-63-8, DNA (human clone apM2 cDNA) 391583-63-4 391584-78-4, DNA (human gene TBX2 cDNA) 391584-79-5 391584-82-0 391584-83-1 391584-97-7, DNA (human gene HMGI-C) 391584-98-8, DNA (human blood gene DARC plus flanks) 391588-46-8, DNA (human gene ST13 cDNA) 391588-47-9 391588-59-3, DNA (human clone s153 cDNA) 391588-65-1, DNA (human gene Nramp2 cDNA) 391588-67-3, DNA (human clone S31i125 cDNA) 391590-87-7, DNA (human cell line C-Li21 cDNA) 391590-88-8, GenBank U29463 391590-98-0, DNA (human CAS cDNA) 391591-07-4 391591-14-3 391591-31-4 391591-35-8, DNA (human cell line MKN28 cDNA) 391591-66-5 391591-67-6 391592-22-6, DNA (human clone pBO52 cDNA) 391758-89-7, DNA (human clone pHTO3 cDNA) 391759-27-6 391759-28-7 391759-38-9 391759-88-9, DNA (human gene SCNN1B cDNA) 391763-22-7 391763-24-9, DNA (human gene CYP2A13) 391763-33-0, DNA (human gene hsRPB8) 391763-34-1 391763-44-3, DNA (human clone GT247 cDNA) 391763-46-5 391763-54-5 391765-26-7 391765-30-3 391765-33-6, DNA (human clone 108448 cDNA) 391765-35-8 391766-15-7, DNA (human gene SCCA2 cDNA) 391766-16-8 391766-17-9, DNA (human gene orf cDNA) 391767-79-6 391767-84-3 391768-57-3 391769-35-0 391770-17-5 391770-18-6, DNA (human cell line SKBR-3 cDNA) 391770-28-8 391770-73-3 391770-95-9 391771-45-2 391772-31-9 391772-37-5, DNA (human cell line KG-1 cDNA) 391772-40-0, DNA (human cell line KG-1 cDNA) 391772-42-2, DNA (human cell line KG-1 cDNA) 391772-43-3 391772-44-4 391772-48-8 391772-51-3, DNA (human cell line KG-1 cDNA) 391772-53-5, DNA (human cell line KG-1 cDNA) 391772-55-7, DNA (human gene DNM cDNA) 391772-68-2 391772-74-0 391772-75-1, DNA (human cell line KG-1 cDNA) 391772-78-4, DNA (human cell line KG-1 cDNA) 391772-82-0, DNA (human cell line KG-1 cDNA) 391772-84-2, DNA (human cell line KG-1 cDNA) 391772-90-0 391772-94-4 391773-74-3 391773-95-8, DNA (human gene creb-rp cDNA) 391774-02-0, DNA (human gene UBCH5B cDNA) 391774-05-3 391774-06-4 391774-10-0 391774-60-0, GenBank U40990 391775-25-0, DNA (human gene CTF1 cDNA) 391775-31-8, GenBank X91196 391775-77-2 391775-83-0 391775-84-1, DNA (human clone A111;A85) 391776-15-1, DNA (human gene acidic calponin

cDNA) 391776-51-5 391777-01-8 391777-02-9 391777-17-6
391779-93-4 391780-95-3 391780-97-5 391781-88-7 391781-96-7, DNA
(human gene DSS1 **protein** cDNA) 391782-07-3 391782-13-1
391782-24-4 391782-26-6 391782-31-3 391782-32-4, GenBank Z49826
391783-00-9 391783-13-4, DNA (human dynamitin cDNA) 391783-87-2, DNA
(human gene htMART cDNA) 391783-94-1 391784-77-3, DNA (human gene MPD
protein cDNA) 391784-82-0, DNA (human glutathione synthetase
cDNA) 391785-32-3, DNA (human gene OC-116KDa cDNA) 391785-36-7, DNA
(human gene six1 cDNA) 391785-95-8 391785-96-9, DNA (human clone MB4)
391785-98-1, DNA (human gene CRISP-3 **protein** cDNA)
391787-70-5, DNA (human **protein** XMP cDNA plus flanks)
391787-72-7 391787-73-8 391787-88-5, DNA (human clone SFA-1 cDNA)
391788-30-0, DNA (human gene Diff33 cDNA) 391788-48-0 391788-68-4
391789-78-9 391789-81-4, DNA (human cell line OsA-Cl cDNA) 391790-49-1
391791-22-3, DNA (human ryudocan core **protein** gene)
391791-70-1, DNA (human gene Grb14 cDNA) 391791-87-0, DNA (human gene
NKCC2 cDNA) 391791-88-1, DNA (human cell line HeLa cell cDNA)
391792-14-6, GenBank L77563 391792-21-5 391793-92-3 391794-37-9
391794-65-3 391794-68-6 391794-94-8 391794-96-0, DNA (human gene
pyst2) 391795-85-0, DNA (human Smad1 cDNA) 391795-87-2 391796-80-8
391797-11-8 391797-13-0 391797-26-5 391797-54-9, DNA (human clone
KEalpha4.2 cDNA) 391797-58-3, DNA (human clone KBbeta3.2 cDNA)
391797-69-6, GenBank U35005 391798-12-2, DNA (human AEBP1 cDNA)
391798-13-3 391798-43-9, DNA (human gene HLA-H cDNA) 391798-44-0, DNA
(human clone tob4 cDNA)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

IT 391799-41-0, DNA (human gene PP2A cDNA) 391800-73-0 391800-83-2
391800-94-5 391801-55-1 391803-82-0 391803-84-2 391803-95-5
391803-97-7, DNA (human cell line KG-1 cDNA) 391804-00-5, DNA (human
cell line KG-1 cDNA) 391804-01-6 391804-02-7 391804-89-0
391804-94-7 391806-14-7, DNA (human gene MAGE9) 391806-64-7, DNA
(human gene LPP cDNA) 391807-29-7, DNA (human gene XPF cDNA)
391807-30-0, DNA (human neutral calponin cDNA) 391807-54-8, DNA (human
clone D3A cDNA) 391807-57-1 391808-42-7 391808-51-8 391809-32-8,
DNA (human cell line P39 cDNA) 391809-38-4, DNA (human gene hMAD-3)
391809-79-3 391810-13-2 391810-62-1, DNA (human synapsin IIb cDNA)
391810-68-7, DNA (human clone 15B cDNA) 391810-69-8 391811-19-1, DNA
(human gene RBP56 cDNA) 391811-20-4 391811-23-7, DNA (human clone
cos43) 391811-32-8 391811-33-9, DNA (human gene hBD-1 cDNA)
391811-46-4 391811-47-5 391811-60-2 391811-64-6, DNA (human gene
hBRAVO/Nr-CAM) 391811-72-6, DNA (human neogenin cDNA) 391812-49-0
391812-61-6 391812-63-8 391813-81-3 391814-44-1 391814-45-2
391814-60-1 391814-64-5, DNA (human gastricsin cDNA) 391814-66-7, DNA
(human clone DAZ-e11 cDNA) 391814-99-6 391815-01-3 391815-08-0
391815-14-8 391815-16-0, DNA (human clone HA6690 cDNA) 391815-18-2
391815-20-6 391815-49-9 391815-86-4 391815-90-0, DNA (human gene C3f
cDNA) 391815-92-2 391816-23-2 391816-49-2 391817-74-6
391818-97-6 391819-61-7 391819-85-5 391819-88-8, DNA (human p0071
protein cDNA) 391819-92-4 391820-03-4, DNA (human clone 23759
cDNA) 391820-04-5, DNA (human clone 23693 cDNA) 391820-05-6, DNA
(human clone 23732 cDNA) 391820-14-7, DNA (human clone 23748 cDNA)
391821-01-5 391821-35-5 391821-43-5 391821-88-8 391822-29-0
391822-53-0 391822-85-8 391822-86-9, DNA (human clone 2.1 cDNA)
391824-41-2 391826-32-7 391826-61-2, DNA (human gene MDFI cDNA)
391826-94-1 391826-95-2 391827-04-6, DNA (human gene Kir1.3)
391827-16-0 391827-18-2 391827-29-5, DNA (human gene TSG101 cDNA)
391828-27-6, DNA (human semaphorin E cDNA) 391828-94-7 391829-27-9,

DNA (human gene SUPT5H cDNA) 391830-45-8, DNA (human gene MIP-3β cDNA) 391830-79-8 391831-34-8, DNA (human cell line CEM cells cDNA) 391831-38-2 391831-69-9 391831-70-2, DNA (human A28-RGS14p cDNA) 391831-77-9, DNA (human cell line LIM1215 cDNA) 391831-82-6 391831-88-2 391831-89-3, DNA (human gene HTP-1 cDNA) 391832-05-6 391832-06-7, DNA (human gene VRK2 cDNA) 391832-46-5, DNA (human gene FMO2) 391832-48-7 391832-75-0, DNA (human nucleolar **protein** p40 cDNA) 391832-90-9 391833-04-8, DNA (human clone RES4-22B cDNA) 391833-06-0, DNA (human clone RES4-26 cDNA) 391833-38-8, DNA (human glia maturation factor cDNA) 391833-54-8, GenBank Y09561 391833-55-9 391833-60-6 391833-85-5 391834-62-1 391835-20-4 391835-95-3, DNA (human clone phKII-3 cDNA) 391835-97-5 391835-98-6, GenBank X99886 391836-00-3 391836-02-5 391836-06-9, DNA (human clone HP01049 cDNA) 391836-14-9 391836-20-7, DNA (human clone 23907 cDNA) 391836-80-9, DNA (human gene CDS cDNA) 391836-81-0, DNA (human HS1 binding **protein** cDNA) 391836-99-0 391837-13-1, DNA (human gene cul-2 cDNA) 391838-09-8, DNA (human clone 31293 cDNA) 391838-71-4 391839-11-5 391839-14-8 391839-27-3, DNA (human HYA22 cDNA) 391839-32-0 391840-69-0, DNA (human gene DRADA2b cDNA) 391840-75-8 391840-93-0, DNA (human pyridoxal **kinase** cDNA) 391840-94-1 391841-52-4 391841-59-1, DNA (human clone ATCC 353794 cDNA) 391841-60-4, DNA (human gene UCPH cDNA) 391841-63-7 391842-02-7 391842-07-2 391842-29-8 391842-52-7 391842-76-5 391843-15-5 391843-44-0 391844-43-2 391844-49-8, DNA (human gene NPT4 cDNA) 391844-53-4, DNA (human gene BTF2) 391844-55-6, DNA (human gene BTF5 cDNA) 391844-65-8 391845-63-9, DNA (human bikunin cDNA) 391845-65-1, DNA (human gene OPG cDNA) 391845-67-3, GenBank U96115 391846-71-2 391846-81-4 391847-29-3 391847-56-6, DNA (human Hlark cDNA) 391848-63-8, DNA (human clone R31396-F25451-R31076) 391849-10-8 391849-11-9 391850-10-5 391851-20-0 391851-69-7 391851-70-0 391852-01-0 391852-23-6 391853-04-6 391853-23-9, DNA (human gene HE6 cDNA) 391853-60-4 391854-27-6 391854-48-1 391854-67-4 391854-98-1, DNA (human transmembrane **protein** cDNA) 391854-99-2, DNA (human **protein** IPL cDNA plus flanks) 391856-09-0 391856-28-3 391856-63-6 391857-86-6 391982-57-3 391983-35-0 391984-34-2 391984-57-9 391984-90-0 391985-36-7 391985-53-8 391985-57-2 391985-88-9 391986-15-5 391986-21-3 391986-25-7 391987-11-4 391987-27-2 391987-58-9 391987-78-3 391988-89-9, DNA (human gene BCL9) 391989-61-0 391989-66-5 391989-94-9 391990-27-5 391990-29-7 391990-30-0 391991-74-5 391992-10-2 391992-17-9, DNA (human clone genomic t083) 391995-75-8 391997-52-7 391997-75-4 391998-54-2 391998-85-9 391999-44-3 391999-46-5 392000-55-4 392000-73-6 392002-24-3 392003-69-9 392003-98-4, DNA (human gene hPARG cDNA) 392004-66-9 392004-89-6 392005-83-3 392007-47-5, DNA (human gene hCTR1 cDNA) 392009-64-2, DNA (human clone ICRFc103G087) 392009-77-7, DNA (human cell line HeLa S3 cDNA) 392010-66-1 392011-03-9, DNA (human gene OB-RGRP cDNA) 392011-08-4 392011-10-8, DNA (human gene selW cDNA) 392012-11-2 392012-20-3 392012-21-4, DNA (human DEC1 cDNA) 392013-07-9 392013-09-1 392015-53-1, GenBank AJ000099 392015-75-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(nucleotide sequence; expressed gene sets as markers for specific tumors)

IT 392017-13-9 392019-08-8 392020-66-5 392069-90-8, DNA (human αB-crystallin cDNA) 392109-74-9 392110-12-2, DNA (human gene antiquitin cDNA) 392185-63-6, DNA (human glutaminyl-tRNA synthetase) 392186-08-2, DNA (human serotonin **receptor** gene) 392192-85-7 392193-09-8 392193-15-6, DNA (human gene ATPL cDNA) 392193-18-9 392193-30-5, DNA (human gene CGM7) 392193-44-1 392193-62-3, GenBank

M69225 392193-80-5 392194-85-3 392195-25-4 392195-88-9
392198-67-3 392198-83-3, DNA (human clone hg00112s1 cDNA) 392198-94-6
392199-04-1 392202-92-5 392204-42-1, DNA (human **protein** p85
cDNA) 392204-45-4 392204-50-1 392204-58-9 392204-69-2
392204-88-5 392204-97-6, DNA (human clone HG1758 cDNA) 392205-48-0
392207-45-3, DNA (human gene IGFBP6 cDNA) 392207-71-5, DNA (human clone
hh00141s1 cDNA) 392208-97-8, DNA (human clone lambdaF2.6 cDNA)
392209-02-8, DNA (human gene IGFBP4 cDNA) 392209-77-7, DNA (human clone
HH0733 cDNA) 392213-11-5 392213-13-7 392213-15-9, DNA (human gene
IGF1R cDNA) 392214-43-6, GenBank M31776 392214-46-9, GenBank J00212
392214-97-0, GenBank M88579 398095-16-4, DNA (human clone lambda hK1R
cDNA) 398095-28-8 398095-31-3, DNA (human preproinsulin gene)
398095-63-1, DNA (human α-tubulin gene) 398096-95-2, DNA (human
gene ACY1 **protein** cDNA) 398109-70-1, GenBank D21241
398109-87-0 398110-85-5, DNA (human gene PKD1 cDNA) 398113-74-1, DNA
(human gene FXR2 cDNA) 398113-83-2, DNA (human cell line W138 cell line
) 398114-34-6, DNA (human Smad6 cDNA) 398425-27-9, DNA (human gene
IL1R) 398425-36-0 398425-42-8 398425-46-2, DNA (human gene NAGA
cDNA) 398425-50-8, GenBank M20778 398425-55-3, DNA (human gene GRP
cDNA) 398425-70-2 398425-86-0, DNA (human cell line U118-MG cDNA)
398426-03-4, DNA (human gene STS cDNA) 398426-09-0 398426-14-7, DNA
(human gene BDH cDNA) 398435-07-9 398448-49-2
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
(Biological study)
(nucleotide sequence; expressed gene sets as markers for specific
tumors)

L40 ANSWER 39 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:912134 HCAPLUS
DN 137:61092
ED Entered STN: 18 Dec 2001
TI MCF-10A-NeoST: a new cell system for studying cell-ECM and cell-cell interactions in breast cancer
AU Zantek, Nicole Dodge; Walker-Daniels, Jennifer; Stewart, Jane; Hansen, Rhonda K.; Robinson, Daniel; Miao, Hui; Wang, Bingcheng; Kung, Hsing-Jien; Bissell, Mina J.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University, West Lafayette, IN, 47905, USA
SO Clinical Cancer Research (**2001**), 7(11), 3640-3648
CODEN: CCREF4; ISSN: 1078-0432
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB There is a continuing need for genetically matched cell systems to model cellular behaviors that are frequently observed in aggressive breast cancers. We report here the isolation and initial characterization of a spontaneously arising variant of MCF-10A cells, NeoST, which provides a new model to study cell adhesion and signal transduction in breast cancer. NeoST cells recapitulate important biol. and biochem. features of metastatic breast cancer, including anchorage-independent growth, invasiveness in three-dimensional reconstituted membranes, loss of E-cadherin expression, and increased **tyrosine kinase** activity. A comprehensive anal. of **tyrosine kinase** expression revealed overexpression or functional activation of the Axl, FAK, and **EphA2 tyrosine kinases** in transformed MCF-10A cells. MCF-10A and these new derivs. provide a genetically matched model to study defects in cell adhesion and signaling that are relevant to cellular behaviors that often typify aggressive breast cancer cells.

ST breast cancer disease model MCF10A NeoST; cell adhesion breast cancer disease model; signal transduction breast cancer disease model
IT Cadherins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(E-; MCF-10A-NeoST: new cell system for studying cell-ECM and cell-cell interaction in breast cancer)
IT Adhesion, biological
Disease models
Extracellular matrix
Mammary gland, neoplasm
Signal transduction, biological
(MCF-10A-NeoST: new cell system for studying cell-ECM and cell-cell interaction in breast cancer)
IT Growth, animal
(anchorage-independent; MCF-10A-NeoST: new cell system for studying cell-ECM and cell-cell interaction in breast cancer)
IT Neoplasm
(metastasis; MCF-10A-NeoST: new cell system for studying cell-ECM and cell-cell interaction in breast cancer)
IT 80449-02-1, **Tyrosine kinase** 144114-16-9, Focal adhesion **kinase 149433-91-0, EphA2 receptor tyrosine kinase** 153190-63-7, Axl **receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MCF-10A-NeoST: new cell system for studying cell-ECM and cell-cell interaction in breast cancer)
RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(2) Bartley, T; Nature (Lond) 1994, V368, P558 HCAPLUS
(3) Bellosta, P; Oncogene 1997, V15, P2387 HCAPLUS
(4) Birchmeier, W; Bioessays 1995, V17, P97 HCAPLUS
(5) Bissell, M; Am J Pathol 1999, V155, P675 MEDLINE
(6) Bissell, M; Cancer Res 1999, V59, P1757 MEDLINE
(7) Briand, P; Cancer Res 1996, V56, P2039 HCAPLUS
(8) Burchert, A; Oncogene 1998, V16, P3177 HCAPLUS
(9) Burridge, K; Annu Rev Cell Dev Biol 1996, V12, P463 HCAPLUS
(10) Burridge, K; J Cell Biol 1992, V119, P893 HCAPLUS
(11) Calderwood, D; J Biol Chem 2000, V275, P22607 HCAPLUS
(12) Cance, W; Breast Cancer Res Treat 1995, V35, P105 HCAPLUS
(13) Clark, G; Oncogene 1996, V12, P169 HCAPLUS
(14) Coppolino, M; Int J Biochem Cell Biol 2000, V32, P171 HCAPLUS
(15) Davis, S; Science (Wash DC) 1994, V266, P816 HCAPLUS
(16) Fidler, I; J Natl Cancer Inst (Bethesda) 1996, V88, P1700 MEDLINE
(17) Fridell, Y; J Biol Chem 1998, V273, P7123 HCAPLUS
(18) Frisch, S; Curr Opin Cell Biol 1997, V9, P701 HCAPLUS
(19) Garbe, J; Oncogene 1999, V18, P2169 HCAPLUS
(20) Goruppi, S; Mol Cell Biol 2001, V21, P902 HCAPLUS
(21) Graff, J; Cancer Res 1998, V58, P2063 HCAPLUS
(22) Hess, A; Cancer Res 2001, V61, P3250 HCAPLUS
(23) Hunter, T; Cell 1997, V88, P333 HCAPLUS
(24) Janssen, J; Oncogene 1991, V6, P2113 HCAPLUS
(25) Kinch, M; Biochem Soc Trans 1995, V23, P446 HCAPLUS
(26) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(27) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(28) Kornberg, L; J Biol Chem 1992, V267, P23439 HCAPLUS
(29) Lawrence, J; World J Urol 1996, V14, P124 MEDLINE
(30) Lee, W; Mol Cell Biol 1999, V19, P8075 HCAPLUS
(31) Levitzki, A; Science (Wash DC) 1995, V267, P1782 HCAPLUS
(32) Li, L; J Natl Cancer Inst (Bethesda) 1989, V81, P1406 MEDLINE

(33) Lin, W; Oncogene 2000, V19, P5680 HCAPLUS
(34) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(35) Ling, L; Mol Cell Biol 1995, V15, P6582 HCAPLUS
(36) Lochter, A; Semin Cancer Biol 1995, V6, P165 HCAPLUS
(37) Maher, P; Proc Natl Acad Sci USA 1985, V82, P6576 HCAPLUS
(38) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(39) Miao, H; Nature Cell Biol 2000, V2(2), P62 HCAPLUS
(40) Miller, F; J Natl Cancer Inst (Bethesda) 1993, V85, P1725 MEDLINE
(41) O'Bryan, J; Mol Cell Biol 1991, V11, P5016 HCAPLUS
(42) Parsons, J; Important Adv Oncol 1993, P3 MEDLINE
(43) Parsons, J; J Cell Sci Suppl 1994, V18, P109 HCAPLUS
(44) Pauley, R; Eur J Cancer Prev 1993, V3(Suppl 2), P67
(45) Petersen, O; Proc Natl Acad Sci USA 1992, V89, P9064 MEDLINE
(46) Price, J; Breast Cancer Res Treat 1996, V39, P93 MEDLINE
(47) Ruoslahti, E; Adv Cancer Res 1999, V76, P1 HCAPLUS
(48) Ruoslahti, E; Princess Takamatsu Symp 1994, V24, P99 MEDLINE
(49) Schaller, M; Proc Natl Acad Sci USA 1992, V89, P5192 HCAPLUS
(50) Schlaepfer, D; Trends Cell Biol 1998, V8, P151 HCAPLUS
(51) Schmeichel, K; J Mammary Gland Biol & Neoplasia 1998, V3, P201 MEDLINE
(52) Schoenwaelder, S; Curr Opin Cell Biol 1999, V11, P274 HCAPLUS
(53) Stampfer, M; Mol Biol Cell 1997, V8, P2391 HCAPLUS
(54) Steeg, P; Am J Pathol 1996, V149, P733 HCAPLUS
(55) Sternlicht, M; Cell 1999, V98, P137 HCAPLUS
(56) Sternlicht, M; Oncogene 2000, V19, P1102 HCAPLUS
(57) Sun, X; Cell Growth Differ 1999, V10, P343 HCAPLUS
(58) Vleminckx, K; Bioessays 1999, V21, P211 MEDLINE
(59) Weaver, V; Semin Cancer Biol 1995, V6, P175 HCAPLUS
(60) Woodhouse, E; Cancer (Phila) 1997, V80, P1529 MEDLINE
(61) Zand, M; Cell Motil Cytoskeleton 1989, V13, P94 MEDLINE
(62) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(63) Zelinski, D; Cancer Res 2001, V61, P2301 HCAPLUS
(64) Zhong, C; Mol Biol Cell 1997, V8, P2329 HCAPLUS

L40 ANSWER 40 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2001:899097** HCAPLUS
DN **136:260866**
ED Entered STN: 13 Dec 2001
TI Reduced expression of **Ephrin** A1 (EFNA1) **inhibits** three-dimensional growth of HT29 colon carcinoma cells
AU Potla, Lyka; Boghaert, Erwin R.; Armellino, Douglas; Frost, Philip; Damle, Nitin K.
CS Oncology/Immunology Division, Wyeth-Ayerst Research, Pearl River, NY, 10965-1299, USA
SO Cancer Letters (Shannon, Ireland) (**2002**), 175(2), 187-195
CODEN: CALEDQ; ISSN: 0304-3835
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB **Ephrin** A1 (EFNA1) is a GPI-anchored ligand that preferentially binds to the **receptor tyrosine kinase**, **EphA2**. **EphA2** is over-expressed in malignant melanocytes and in prostate carcinoma cells. Whether activation of **Eph-A2** by EFN-A1 is involved in aberrant growth or differentiation of cancer cells is currently not known. We studied the effect of reducing EFNA1 on the growth of a colon carcinoma cell line (HT29). HT29 cells were transfected with EFNA1 antisense yielding clones that expressed less than 25% of EFNA1 found in vector controls. EFNA1-antisense transfectants grew slower than controls when cultured as three-dimensional spheroids. When grown as monolayers, the transfectants had a similar doubling time of

the vector controls. These results indicated that autocrine stimulation of **EphA2** by EFNA1 could trigger an indirect growth signal by overcoming 'contact **inhibition**'. Following addition of EFNA1-Fc to HT29 cells, **tyrosine** hyperphosphorylation of **EphA2**, E-cadherin, and β-catenin were observed Because the function of E-cadherin is associated with contact **inhibition** of HT29 cells, phosphorylation of E-cadherin and β-catenin by activation of **EphA1** is one possible mechanism by which HT29 cells alleviate contact **inhibition.**

ST **ephrinA1** EFNA1 colon carcinoma; cadherin catenin phosphorylation cell proliferation

IT Cadherins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(E-; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT Intestine, neoplasm
(colon, carcinoma; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT Carcinoma
(colon; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT **Proteins**
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A1; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT Cell proliferation
Human
(**ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT Phosphorylation, biological
(**protein**; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT Catenins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(β-; **ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrinA1**-induced phosphorylation of cadherin-E, β-catenin, and **EphA2** in association with cell proliferation of human colon carcinoma)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Aoki, J; J Cell Biol 1991, V115, P1751 HCAPLUS
(2) Attia, M; Cancer Res 1966, V26, P1787 MEDLINE
(3) Brady-Kalnay, S; Int J Cancer 1992, V49, P239
(4) DeMichelli, R; Cancer Res 1989, V49, P6543
(5) Dorudi, S; Am J Pathol 1993, V142, P981 MEDLINE
(6) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(7) Kandikonda, S; Cell Adhes Commun 1996, V4, P13 HCAPLUS
(8) Mucller-Klieser, W; J Cell Biol 1997, V273, P1109

(9) Ogawa, K; Oncogene 2000, V19, P6043 HCAPLUS
(10) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(11) Shibamoto, S; Cell Adhes Commun 1994, V1, P295 HCAPLUS
(12) Shiozaki, H; Br J Cancer 1995, V71, P250 HCAPLUS
(13) St Croix, B; J Cell Biol 1998, V142, P557 HCAPLUS
(14) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(15) Takeda, H; J Cell Biol 1995, V131, P1839 HCAPLUS
(16) Vleminckx, K; BioEssays 1999, V21, P211 MEDLINE
(17) Walker Daniels, W; Prostate 1999, V41, P275
(18) Watabe, M; J Cell Biol 1994, V127, P247 HCAPLUS
(19) Westermark, B; Int J Cancer 1974, V12, P438
(20) Yap, A; Annu Rev Cell Dev Biol 1997, V13, P119 HCAPLUS
(21) Yuhas, J; Cancer Res 1977, V37, P3639 MEDLINE
(22) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS

L40 ANSWER 41 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2001:779727** HCAPLUS
DN **136:52021**
ED Entered STN: 26 Oct 2001
TI **Receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis
AU Dohn, Michael; Jiang, Jieyuan; Chen, Xinbin
CS Institute of Molecular Medicine and Genetics, Medical College of Georgia, Augusta, GA, 30912, USA
SO Oncogene (**2001**), 20(45), 6503-6515
CODEN: ONCNES; ISSN: 0950-9232
PB Nature Publishing Group
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2, 3
AB The p53 tumor suppressor **protein** is mutated in more than 50% of all human cancers, which makes the study of its functions and activities critical for the understanding and management of cancer. In response to cellular stresses, p53 is activated and can mediate cell cycle arrest and/or apoptosis via the upregulation of numerous target genes. Here, the authors have identified **EphA2** as a target gene of the p53 family, i.e., p53, p73, and p63. The authors also found that an increase of **EphA2** transcript levels correlated with an increase of **EphA2 protein** expression, and induction of **EphA2** in response to DNA damage corresponded with p53 activation. Furthermore, the authors identified a p53 response element located within the **EphA2** promoter that is responsive to wild-type p53, p73, and p63, but not mutant p53. Interestingly, the ligand for **EphA2**, **ephrin**-A1, is also regulated by p53. **EphA2** and **ephrin**-A1 are members of the **Eph** family of **receptor tyrosine kinases** and ligands, which are implicated in a number of developmental processes. To analyze the role of **EphA2** in p53-mediated tumor suppression, the authors generated stable cell lines capable of expressing exogenous **EphA2** in a tetracycline-repressible system. The authors found that **EphA2** expression resulted in an increase in apoptosis. Thus, the authors hypothesize that the activated **EphA2** may serve to impair anti-apoptotic signaling, perhaps by disrupting focal adhesions and thereby sensitize cells to pro-apoptotic stimuli.
ST **receptor tyrosine kinase EphA2** p53 family apoptosis tumor suppression
IT **Tyrosine kinase receptors**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**EphA2; receptor tyrosine kinase**

EphA2 is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT Gene, animal
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(**EphA2**; **receptor tyrosine kinase** **EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT DNA
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(damage; **receptor tyrosine kinase** **EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression and DNA damage-induced **EphA2** phosphorylation)

IT Growth factors, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**ephrin**-A1; **receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression and)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p63; **receptor tyrosine kinase** **EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(p73; **receptor tyrosine kinase** **EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT Animal cell line
Apoptosis
Human
Neoplasm
Transcription, genetic
(**receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT mRNA
p53 (**protein**)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

IT Phosphorylation, biological
(**receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression and DNA damage-induced **EphA2** phosphorylation)

IT Promoter (genetic element)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(**receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression and p53-responsive element in **EphA2** promoter)

IT Genetic element
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(tumor antigen p53-responsive element; **receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression and p53-responsive element in **EphA2** promoter)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**receptor tyrosine kinase EphA2** is regulated by p53-family **proteins** and induces apoptosis in relation to tumor suppression)

RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Agarwal, M; J Biol Chem 1998, V273, P1 HCAPLUS
(2) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(3) Candau, R; Oncogene 1997, V15, P807 HCAPLUS
(4) Chen, C; Mol Cell Biol 1987, V7, P2745 HCAPLUS
(5) Chen, X; Genes Dev 1996, V10, P2438 HCAPLUS
(6) Chen, X; Mol Med Today 1999, V5, P387 HCAPLUS
(7) Cheng, H; Cell 1995, V82, P371 HCAPLUS
(8) Committee, E; Cell 1997, V90, P403
(9) de Laurenzi, V; Cell Death Differ 1999, V6, P389 HCAPLUS
(10) de Laurenzi, V; J Exp Med 1998, V188, P1763 HCAPLUS
(11) Dohn, M; Oncogene 2001, V20, P3193 HCAPLUS
(12) El-Deiry, W; Cell 1993, V75, P817 HCAPLUS
(13) El-Deiry, W; Nat Genet 1992, V1, P45 HCAPLUS
(14) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(15) Frisch, S; J Cell Biol 1996, V134, P793 HCAPLUS
(16) Frisen, J; EMBO J 1999, V18, P5159 HCAPLUS
(17) Frisen, J; Neuron 1998, V20, P235 HCAPLUS
(18) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(19) Guilford, P; Mol Med Today 1999, V5, P172 HCAPLUS
(20) Gumbiner, B; Cell 1996, V84, P345 HCAPLUS
(21) Harper, J; Cell 1993, V75, P805 HCAPLUS
(22) Henkemeyer, M; Cell 1996, V86, P35 HCAPLUS
(23) Holder, N; Development 1999, V126, P2033 HCAPLUS
(24) Hollstein, M; Nucleic Acids Res 1994, V22, P3551 HCAPLUS
(25) Hollstein, M; Science 1991, V253, P49 HCAPLUS
(26) Hungerford, J; J Cell Biol 1996, V135, P1383 HCAPLUS
(27) Ilic, D; J Cell Biol 1998, V143, P547 HCAPLUS
(28) Johansen, F; Mol Cell Biol 1994, V14, P5920 HCAPLUS
(29) Jost, C; Nature 1997, V389, P191 HCAPLUS
(30) Kaelin, W; Oncogene 1999, V18, P7701 HCAPLUS
(31) Kaghad, M; Cell 1997, V90, P809 HCAPLUS
(32) Levine, A; Cell 1997, V88, P323 HCAPLUS
(33) Levrero, M; J Cell Sci 2000, V113, P1661 HCAPLUS
(34) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(35) Mellitzer, G; Nature 1999, V400, P77 HCAPLUS
(36) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(37) Miao, H; Nat Cell Biol 2001, V3, P527 HCAPLUS
(38) Miyashita, T; Cell 1995, V80, P293 HCAPLUS
(39) Osada, M; Nat Med 1998, V4, P839 HCAPLUS
(40) Ozaki, T; Cancer Res 1999, V59, P5902 HCAPLUS
(41) O'Leary, D; Curr Opin Neurobiol 1999, V9, P65 HCAPLUS
(42) Prives, C; J Pathol 1999, V187, P112 HCAPLUS
(43) Rodriguez-Fernandez, J; Bioessays 1999, V21, P1069 MEDLINE
(44) Scheffner, M; Cell 1993, V75, P495 HCAPLUS
(45) Schmale, H; Oncogene 1997, V15, P1363 HCAPLUS
(46) Senoo, M; Biochem Biophys Res Commun 1998, V248, P603 HCAPLUS
(47) Shimada, A; Cancer Res 1999, V59, P2781 HCAPLUS

(48) Smith, C; J Biol Chem 1997, V272, P27493 HCAPLUS
(49) Sonoda, Y; J Biol Chem 2000, V275, P16309 HCAPLUS
(50) Trink, B; Nat Med 1998, V4, P747
(51) Ueda, Y; Oncogene 1999, V18, P4993 HCAPLUS
(52) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(53) Xu, Q; Nature 1999, V399, P267 HCAPLUS
(54) Yang, A; Mol Cell 1998, V2, P305 HCAPLUS
(55) Yang, A; Nat Rev Mol Cell Biol 2000, V1, P199 HCAPLUS
(56) Yang, A; Nature 2000, V404, P99 HCAPLUS
(57) Yu, J; Proc Natl Acad Sci USA 1999, V96, P14517 HCAPLUS
(58) Zaika, A; Cancer Res 1999, V59, P3257 HCAPLUS
(59) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(60) Zhao, R; Genes Dev 2000, V14, P981 HCAPLUS
(61) Zhu, J; Cancer Res 1998, V58, P5061 HCAPLUS
(62) Zhu, J; J Biol Chem 1998, V273, P13030 HCAPLUS
(63) Zhu, J; Mol Cell Biol 2000, V20, P5602 HCAPLUS
(64) Zhu, K; Oncogene 1999, V18, P7740 HCAPLUS

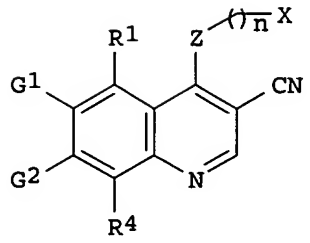
L40 ANSWER 42 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2001:721437** HCAPLUS
DN **135:272896**
ED Entered STN: 03 Oct 2001
TI Preparation of substituted 3-cyanoquinolines as **protein tyrosine kinases inhibitors**
IN Wissner, Allan; Tsou, Hwei-ru; Berger, Dan M.; Floyd, Middleton B., Jr.; Hamann, Philip R.; Zhang, Nan; Frost, Philip
PA American Cyanamid Company, USA
SO U.S., 57 pp., Cont. of U.S. Ser. No. 405,868, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM A61K031-47
ICS C07D215-44
INCL 514313000
CC 27-17 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 1, 63
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6297258	B1	20011002	US 2000-630270	20000801 <--
PRAI US 1998-150699P	P	19980929	<--	
US 1999-405868	B1	19990924	<--	

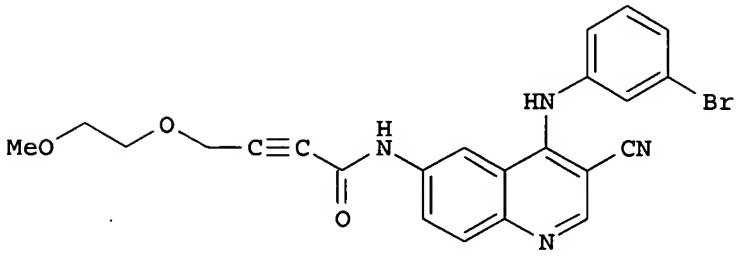
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6297258	ICM	A61K031-47
	ICS	C07D215-44
	INCL	514313000
US 6297258	NCL	514/313.000; 514/151.000; 514/228.200; 514/235.200; 514/252.180; 514/253.060; 514/253.070; 514/278.000; 514/312.000; 544/058.600; 544/128.000; 544/328.000; 544/331.000; 544/363.000; 546/019.000; 546/153.000; 546/159.000; 546/160.000; 546/171.000
	ECLA	C07D215/44 <--

OS MARPAT 135:272896
GI



I



II

AB Title compds. I [X = cycloalkyl, pyridinyl, pyrimidinyl, etc.; Z = NH, O, S, NR; R = alkyl; G1, G2, R1, R4 = H, halo, alkyl, alkynyl, etc.; n = 0, 1], **protein tyrosine kinase inhibitors**, were prepared Examples included 189 compds. and 6 bioassays. E.g., II was prepared by coupling the 4-(2-methoxyethoxy)but-2-ynoic acid with 6-amino-3-cyano-4-[(3-bromophenyl)amino]quinoline (i-BuOCOCl, N-methylmorpholine, THF, 0°C, 3 h) in 32% yield after purification II had IC50 = 0.006 μM for EGFR **kinase.** I are useful as antineoplastic agents.

ST cyanoquinoline prepn **protein tyrosine kinase inhibitor**; quinoline cyano prepn **protein tyrosine kinase inhibitor**; antineoplastic agent cyanoquinoline prepn

IT Antitumor agents
(preparation of cyanoquinolines as antineoplastic agents)

IT 79079-06-4, Epidermal growth factor **receptor kinase** 137632-08-7, ERK 2 **kinase** 142805-58-1, MAPKK **149433-91-0, Eck kinase** 150977-45-0, KDR **receptor tyrosine kinase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(preparation of cyanoquinolines as antineoplastic agents)

IT 198149-15-4P 263148-94-3P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 2103-50-6P 214476-89-8P 214476-99-0P 263148-87-4P 263148-88-5P
263148-89-6P 263148-90-9P 263148-91-0P 263148-92-1P 263148-93-2P
263148-95-4P 263148-98-7P 263149-00-4P 263149-01-5P 263149-02-6P
263149-03-7P 263149-04-8P 263149-06-0P 263149-07-1P 263149-08-2P
263149-09-3P 263149-10-6P 263149-11-7P 263149-12-8P 263149-13-9P
263149-14-0P 263149-16-2P 263149-17-3P 263149-18-4P 263149-19-5P
263149-20-8P 263149-26-4P 263149-30-0P 263149-31-1P 263149-32-2P
263149-33-3P 263149-34-4P 263149-35-5P 263149-36-6P 263149-37-7P

263149-38-8P 263149-39-9P 263149-40-2P 263149-41-3P 263149-42-4P
263149-43-5P 263149-44-6P 263149-45-7P 263149-46-8P 263149-47-9P
263149-48-0P 263149-49-1P 263149-50-4P 263149-51-5P 263149-52-6P
263149-54-8P 263149-57-1P 263149-60-6P 263149-63-9P 263149-66-2P
263149-68-4P 263149-69-5P 263149-70-8P 263149-72-0P 263149-74-2P
263149-75-3P 263149-77-5P 263149-79-7P 263149-81-1P 263149-83-3P
263149-85-5P 263149-87-7P 263149-90-2P 263149-92-4P 263149-95-7P
263149-98-0P 263150-01-2P 263150-03-4P 263150-04-5P 263150-05-6P
263150-06-7P 263150-07-8P 263150-08-9P 263150-09-0P 263150-10-3P
263150-11-4P 263150-12-5P 263150-13-6P 263150-14-7P 263150-15-8P
263150-16-9P 263150-17-0P 263150-18-1P 263150-20-5P 263150-22-7P
263150-24-9P 263150-26-1P 263150-28-3P 263150-30-7P 263150-31-8P
263150-32-9P 263150-34-1P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 94-05-3 97-52-9, 2-Methoxy-4-nitroaniline 98-16-8, 3-Trifluoromethylaniline 99-52-5 100-01-6, 4-Nitroaniline, reactions 103-76-4, 4-(2-Hydroxyethyl)piperazine 106-40-1, 4-Bromoaniline 106-96-7, Propargyl bromide 107-19-7, Propargyl alcohol 107-30-2, Chloromethyl methyl ether 107-94-8, 3-Chloropropionic acid 108-42-9, 3-Chloroaniline 108-44-1, 3-Toluidine, reactions 109-01-3, 1-Methylpiperazine 109-83-1, 2-(Methylamino)ethanol 109-86-4, 2-Methoxyethanol 110-97-4, 1,1'-Iminodi-2-propanol 111-42-2, Bis(2-hydroxyethyl)amine, reactions 111-95-5 123-90-0, Thiomorpholine 124-02-7, Diallylamine 177-11-7, 1,4-Dioxa-8-azaspiro[4.5]decane 367-21-5, 3-Chloro-4-fluoroaniline 504-78-9, Thiazolidine 536-90-3, 3-Methoxyaniline 590-93-2, 2-Butynoic acid 591-19-5, 3-Bromoaniline 615-55-4, 3,4-Dibromoaniline 621-33-0, 3-Ethoxyaniline 624-65-7, Propargyl chloride 626-01-7, 3-Iodoaniline 656-64-4, 3-Bromo-4-fluoroaniline 693-95-8, 4-Methylthiazole 766-17-6, cis-2,6-Dimethylpiperidine 1117-71-1, Methyl 4-bromocrotonate 2237-30-1, 3-Aminobenzonitrile 2629-72-3, 3-(4-Pyridyl)-1-propanol 2799-21-5, (R)-3-Pyrrolidinol 2835-95-2, 3-Hydroxy-4-methylaniline 3378-71-0, 2,5-Dimethylpyrrolidine 3433-37-2, 2-Hydroxymethylpiperidine 3581-89-3, 5-Methylthiazole 3863-11-4, 3,4-Difluoroaniline 4606-65-9, 3-Hydroxymethylpiperidine 4747-21-1, Isopropylmethylamine 5231-87-8 5344-27-4, 2-(4-Pyridyl)ethanol 5382-16-1, 4-Hydroxypiperidine 6139-84-0, 4-Chlorobutanal 7223-38-3, 1-Dimethylamino-2-propyne 32631-26-8 38256-93-8 41775-76-2, 1,4,7-Trioxa-10-azacyclododecane 41979-39-9, 4-Piperidone hydrochloride 51544-74-2, 4-Bromocrotonyl chloride 54060-30-9, 3-Ethynylaniline 57366-77-5 57946-56-2, 4-Chloro-2-fluoroaniline 61032-42-6 63126-47-6 74024-49-0 214470-55-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 2458-24-4P 13280-03-0P 20629-35-0P 27333-44-4P 45813-02-3P 71083-64-2P 118764-05-9P 214470-27-6P 214470-33-4P 214470-35-6P 214470-37-8P 214471-15-5P 214471-46-2P 214476-07-0P 214476-08-1P 214476-09-2P 214476-14-9P 214476-23-0P 214484-01-2P 214484-03-4P 214484-09-0P 214484-11-4P 214484-17-0P 214484-18-1P 214484-20-5P 214484-21-6P 214484-70-5P 214484-74-9P 214484-75-0P 214484-76-1P 214484-77-2P 214484-78-3P 214484-90-9P 214484-91-0P 214484-93-2P 214484-94-3P 214484-96-5P 214484-97-6P 214485-01-5P 214485-08-2P 214485-09-3P 214485-11-7P 214485-12-8P 214485-14-0P 214485-15-1P 214485-17-3P 214485-18-4P 214485-21-9P 214485-22-0P 214485-26-4P 214485-27-5P 214485-52-6P 214485-53-7P 214485-59-3P 214485-60-6P

214485-64-0P 214485-65-1P 214485-68-4P 214485-69-5P 214485-74-2P
214485-75-3P 214487-27-1P 214489-60-8P 220699-97-8P 220699-98-9P
220699-99-0P 220700-00-5P 220700-02-7P 220700-03-8P 220700-04-9P
220700-05-0P 263149-21-9P 263149-22-0P 263149-23-1P 263149-24-2P
263149-25-3P 263149-27-5P 263149-28-6P 263149-29-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 214485-81-1P 214487-06-6P 263148-96-5P 263148-97-6P 263148-99-8P
263150-36-3P 263150-38-5P 263150-40-9P 263150-42-1P 263150-44-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of cyanoquinolines as **protein tyrosine kinase inhibitors**)

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; EP 0520722 1992 HCAPLUS
(2) Anon; EP 0566226 1993 HCAPLUS
(3) Anon; EP 0602851 1994 HCAPLUS
(4) Anon; EP 0635498 1995 HCAPLUS
(5) Anon; EP 0635507 1995 HCAPLUS
(6) Anon; WO 9515758 1995 HCAPLUS
(7) Anon; WO 9519774 1995 HCAPLUS
(8) Anon; WO 9519970 1995 HCAPLUS
(9) Anon; WO 9521613 1995 HCAPLUS
(10) Anon; WO 9523141 1995 HCAPLUS
(11) Anon; WO 9524190 1995 HCAPLUS
(12) Anon; WO 9609294 1996 HCAPLUS
(13) Anon; WO 9633977 1996 HCAPLUS
(14) Anon; WO 9633978 1996 HCAPLUS
(15) Anon; WO 9633979 1996 HCAPLUS
(16) Anon; WO 9633980 1996 HCAPLUS
(17) Anon; WO 9633981 1996 HCAPLUS
(18) Anon; WO 9802434 1998 HCAPLUS
(19) Anon; WO 9802438 1998 HCAPLUS
(20) Anon; WO 9813350 1998 HCAPLUS
(21) Anon; WO 9843960 1998 HCAPLUS
(22) Bridges, A; J Med Chem 1996, V39, P267 HCAPLUS
(23) Chang, C; J Nat Prod 1992, V55, P1529 HCAPLUS
(24) Dolle, R; J Med Chem 1994, V372, P2627
(25) Du, J; Am J Physiol 1995, V269(2 Pt 1), P487
(26) Fry, D; Science 1994, V265, P1093 HCAPLUS
(27) Gattone, V; Developmental Biology 1995, V169(2), P504 HCAPLUS
(28) Gazit, A; J Med Chem 1996, V35(11), P2170
(29) Ife, R; J Med Chem 1992, V35(18), P3413 HCAPLUS
(30) Maguire, M; J Med Chem 1994, V37, P2129 HCAPLUS
(31) Nauta, J; Pediatric Research 1995, V37(6), P755 HCAPLUS
(32) Rewcastle, A; J Med Chem 1996, V39, P267
(33) Spada; US 5480883 1996 HCAPLUS
(34) Traxler; US 5686457 1997 HCAPLUS
(35) Wilson, P; Eur J Cell Biol 1993, V61(1), P131 HCAPLUS
(36) Wissner; US 6002008 1999 HCAPLUS

L40 ANSWER 43 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2001:672213** HCAPLUS
DN **135:226901**
ED Entered STN: 13 Sep 2001
TI Preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**
IN Wissner, Allan; Tsou, Hwei-ru; Berger, Dan M.; Floyd, Middleton B., Jr.;

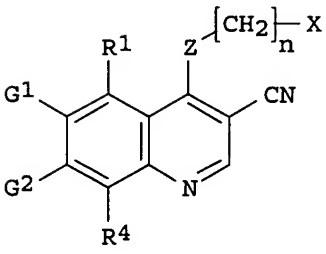
Hamann, Philip R.; Zhang, Nan; Salvati, Mark E.; Frost, Philip
PA American Cyanamid Company, USA
SO U.S., 68 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM A61K031-47
ICS C07D213-68; C07D213-74
INCL 514313000
CC 27-17 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 1
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6288082	B1	20010911	US 1999-406573	19990924 <--
PRAI US 1998-150693P	P	19980929 <--		

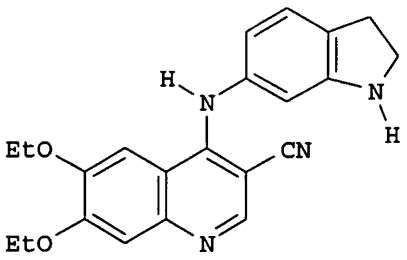
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6288082	ICM	A61K031-47
	ICS	C07D213-68; C07D213-74
	INCL	514313000
US 6288082	NCL	514/313.000; 514/234.800; 514/235.200; 514/252.180; 514/253.060; 514/253.070; 514/300.000; 514/312.000; 540/506.000; 544/112.000; 544/128.000; 544/237.000; 544/300.000; 544/316.000; 544/350.000; 544/354.000; 544/356.000; 544/363.000; 546/019.000; 546/090.000; 546/122.000; 546/143.000; 546/153.000; 546/159.000; 546/160.000; 546/162.000
	ECLA	C07D215/48; C07D401/12+215+209C; C07D401/12+215+211; C07D401/12+233+215; C07D401/12+231+215; C07D401/12+235C+215; C07D417/12+277B+215 <--

OS MARPAT 135:226901
GI



I



II

AB The title compds. [I; X = (un)substituted bicyclic aryl or bicyclic heteroaryl ring system of 8-12 atoms where the bicyclic heteroaryl ring contains 1-4 heteroatoms selected from N, O and S; Z = (un)substituted NH, O, S; G1, G2, R1, R4 = H, halo, alkyl, etc.; n = 0-1], useful as antineoplastic agents and in the treatment of polycystic kidney disease, were prepared Thus, Me 2-amino-4,5-diethoxybenzoate was N-condensed with HCNMe2/POCl3 and the product cyclocondensed with MeCN to give, after POCl3 treatment, 4-chloro-6,7-diethoxyquinoline-3-carbonitrile which was aminated by 6-aminoindoline to give title compd II. Data for biol. activity (**inhibition** of EGFR **kinase**, KDR, **Eck**, Mek-Erk) of I were given.
ST cyanoquinoline prepn **protein tyrosine kinase**

inhibitor antitumor; polycystic kidney disease cyanoquinoline prepn; mitogen activated **protein kinase** ERK **inhibitor** cyanoquinoline prepn; EGFR **kinase inhibitor** cyanoquinoline prepn; KDR **protein kinase inhibitor** cyanoquinoline prepn; epithelial cell **kinase eck inhibitor** cyanoquinoline prepn

IT Kidney, disease
(polycystic, treatment of polycystic kidney disease; preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT Antitumor agents
(preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 288-32-4, Imidazole, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Growth factor **receptors** preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**
)

IT 79079-06-4, EGFR **kinase**
RL: BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study)
(mediated disorders; treatment; preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**
)

IT 137632-08-7
RL: BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study)
(mitogen-activated **protein kinase** (Mek-Erk); preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 263169-81-9P 263169-82-0P 263169-83-1P 263169-84-2P 263169-85-3P
263169-87-5P 263169-89-7P 263169-91-1P 263169-93-3P 263169-94-4P
263169-95-5P 263169-96-6P 263169-97-7P 263169-98-8P 263169-99-9P
263170-02-1P 263170-05-4P 263170-08-7P 263170-09-8P 263170-10-1P
263170-11-2P 263170-12-3P 263170-13-4P 263170-14-5P 263170-15-6P
263170-16-7P 263170-17-8P 263170-18-9P 263170-19-0P 263170-20-3P
263170-21-4P 263170-22-5P 263170-23-6P 263170-24-7P 263170-25-8P
263170-26-9P 263170-27-0P 263170-28-1P 263170-29-2P 263170-30-5P
263170-31-6P 263170-32-7P 263170-33-8P 263170-34-9P 263170-35-0P
263170-36-1P 263170-37-2P 263170-38-3P 263170-39-4P 263170-40-7P
263170-41-8P 263170-42-9P 263170-43-0P 263170-44-1P 263170-45-2P
263170-46-3P 263170-47-4P 263170-48-5P 263170-49-6P 263170-50-9P
263170-51-0P 263170-52-1P 263170-53-2P 263170-54-3P 263170-55-4P
263170-56-5P 263170-57-6P 263170-58-7P 263170-59-8P 263170-60-1P
263170-61-2P 263170-62-3P 263170-63-4P 263170-64-5P 263170-65-6P
263170-66-7P 263170-67-8P 263170-68-9P 263170-69-0P 263170-70-3P
263170-71-4P 263170-72-5P 263170-73-6P 263170-74-7P 263170-75-8P
263170-76-9P 263170-77-0P 263170-78-1P 263170-79-2P 263170-80-5P
263170-81-6P 263170-82-7P 263170-83-8P 263170-84-9P 263170-85-0P
263170-86-1P 263170-87-2P 263170-88-3P 263170-89-4P 263170-90-7P
263170-91-8P 263170-92-9P 263170-93-0P 263170-94-1P 263170-95-2P
263170-96-3P 263170-97-4P 263170-98-5P 263170-99-6P 263171-00-2P
263171-01-3P 263171-02-4P 263171-03-5P 263171-04-6P 263171-05-7P
263171-06-8P 263171-07-9P 263171-08-0P 263171-09-1P 263171-10-4P
263171-11-5P 263171-12-6P 263171-13-7P 263171-14-8P 263171-15-9P
263171-16-0P 263171-17-1P 263171-18-2P 263171-19-3P 263171-20-6P
263171-21-7P 263171-22-8P 263171-23-9P 263171-24-0P 263171-25-1P
263171-26-2P 263171-27-3P 263171-28-4P 263171-29-5P 263171-30-8P
263171-31-9P 263171-32-0P 263171-33-1P 263171-34-2P 263171-35-3P
263171-36-4P 263171-37-5P 263171-38-6P 263171-39-7P 263171-40-0P

263171-41-1P 263171-42-2P 263171-43-3P 263171-44-4P 263171-45-5P
263171-46-6P 263171-47-7P 263171-48-8P 263171-49-9P 263171-50-2P
263171-51-3P 263171-52-4P 263171-53-5P 263171-54-6P 263171-55-7P
263171-56-8P 263171-57-9P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 142243-02-5 **149433-91-0** 150977-45-0
RL: BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study)
(preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 59-31-4, Carbostyril 87-13-8, Diethyl ethoxymethylenemalonate 91-21-4, 1,2,3,4-Tetrahydroisoquinoline 94-05-3, Ethyl ethoxymethylenecyanoacetate 97-52-9, 2-Methoxy-4-nitroaniline 99-52-5 100-01-6, 4-Nitroaniline, reactions 103-76-4, 1-(2-Hydroxyethyl)piperazine 106-96-7, Propargyl bromide 107-19-7, Propargyl alcohol 109-01-3, 1-Methylpiperazine 109-86-4, 2-Methoxyethanol 110-91-8, Morpholine, reactions 111-42-2, Diethanolamine, reactions 111-95-5 123-90-0, Thiomorpholine 134-20-3, Methyl anthranilate 177-11-7, 1,4-Dioxa-8-azaspiro[4,5]decane 350-30-1, 3-Chloro-4-fluoronitrobenzene 533-30-2, 6-Aminobenzothiazole 536-90-3, 3-Methoxyaniline 578-66-5, 8-Aminoquinoline 580-15-4, 6-Aminoquinoline 611-34-7, 5-Aminoquinoline 621-33-0, 3-Ethoxyaniline 624-65-7, Propargyl chloride 632-02-0, 3-Chloropropyl p-toluenesulfonate 645-08-9, 3-Hydroxy-4-methoxybenzoic acid 934-22-5, 5-Aminobenzimidazole 1117-71-1, Methyl 4-bromocrotonate 1125-60-6, 5-Aminoisoquinoline 2217-41-6, 1-Amino-5,6,7,8-tetrahydronaphthalene 2629-72-3, 4-(3-Hydroxypropyl)pyridine 3177-80-8, 2-Amino-3-methoxybenzoic acid 3325-11-9, 5-Aminobenzotriazole 3943-74-6, Methyl 4-hydroxy-3-methoxybenzoate 4442-54-0 4684-12-2, 1-Amino-4-chloronaphthalene 4747-21-1, Isopropylmethylamine 5035-82-5, Methyl 2-amino-3,4,5-trimethoxybenzoate 5192-03-0, 5-Aminoindole 5192-23-4, 4-Aminoindole 5318-27-4, 6-Aminoindole 5382-16-1, 4-Hydroxypiperidine 5685-05-2, 2-Mercaptothiazole 6315-89-5, 4-Aminoveratrole 6967-12-0, 6-Aminoindazole 7223-38-3, N,N-Dimethyl-2-propynylamine 7357-67-7, 4-(3-Chloropropyl)morpholine 13669-62-0, 4-Chloro-6-methoxyquinoline-3-carbonitrile 14268-66-7, 3,4-Methylenedioxyaniline 19335-11-6, 5-Aminoindazole 20197-71-1, Methyl 2-amino-4,5-diethoxybenzoate 20503-40-6, 6-Amino-1,1-dioxobenzo[b]thiophene 21302-43-2, 5-Amino-8-hydroxyquinoline dihydrochloride 22013-33-8, 6-Amino-1,4-benzodioxane 24425-40-9 26093-31-2, 7-Amino-4-methylcoumarin 28228-73-1, 6-Aminoindoline dihydrochloride 28782-50-5, 4-Aminophthalhydrazide 29043-48-9, 5-Amino-2-methyl-1H-benzimidazole 32770-99-3, 5-Amino-2-methylbenzothiazole dihydrochloride 38256-93-8, N-Methyl-2-methoxyethylamine 42533-63-1, 4-Bromomethyl-3-chloro-1-nitrobenzene 50472-10-1, 2-Amino-3,6-dimethoxybenzoic acid 56354-98-4, 6-Amino-2-benzothiazolinone 57319-65-0, 6-Aminophthalide 57366-77-5 61032-42-6, Methyl 2-amino-4-benzyloxy-5-methoxybenzoate 63126-47-6, (S)-2-Methoxymethylpyrrolidine 69975-65-1, 6-Amino-1-indanone 133303-88-5 169037-24-5 179688-27-8, Ethyl 2-amino-4,5-bis(2-methoxyethoxy)benzoate 263171-68-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

IT 2286-55-7P 2458-24-4P 3535-24-8P 6702-50-7P, Methyl isovanillate 13280-03-0P 13436-14-1P 20197-75-5P 20197-76-6P 20629-35-0P 26893-14-1P 27333-44-4P 45813-02-3P 50413-49-5P 52791-03-4P

61338-35-0P 71083-59-5P 71083-64-2P 71083-71-1P 73387-74-3P
97966-31-9P 111627-40-8P 113290-32-7P 118764-05-9P 198149-15-4P
214470-27-6P 214470-33-4P 214470-35-6P 214470-37-8P 214470-52-7P
214470-55-0P 214470-56-1P 214470-57-2P 214470-58-3P 214470-59-4P
214470-60-7P 214470-61-8P 214470-66-3P 214470-68-5P 214470-72-1P
214470-75-4P 214470-78-7P 214470-85-6P 214470-90-3P 214471-15-5P
214471-46-2P 214471-57-5P 214472-17-0P 214472-37-4P 214472-41-0P
214472-56-7P 214475-83-9P 214475-85-1P 214475-98-6P 214475-99-7P
214476-00-3P 214476-04-7P 214476-07-0P 214476-08-1P 214476-09-2P
214476-14-9P 214476-23-0P 214476-46-7P 214476-63-8P 214476-65-0P
214476-68-3P 214476-69-4P 214476-70-7P 214476-71-8P 214476-77-4P
214476-78-5P 214476-89-8P 214476-99-0P 214487-27-1P 220699-97-8P
220699-98-9P 220699-99-0P 220700-00-5P 220700-02-7P 220700-03-8P
220700-04-9P 220700-05-0P 263148-94-3P 263148-96-5P 263148-97-6P
263149-09-3P 263149-10-6P 263149-11-7P 263171-58-0P 263171-59-1P
263171-60-4P 263171-61-5P 263171-62-6P 263171-63-7P 263171-64-8P
263171-65-9P 263171-66-0P 263171-67-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of 3-cyanoquinolines as **protein tyrosine kinase inhibitors**)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; EP 0520722 1992 HCAPLUS
(2) Anon; EP 0566226 1993 HCAPLUS
(3) Anon; EP 0602851 1994 HCAPLUS
(4) Anon; EP 0635498 1995 HCAPLUS
(5) Anon; EP 0635507 1995 HCAPLUS
(6) Anon; WO 9515758 1995 HCAPLUS
(7) Anon; WO 9519774 1995 HCAPLUS
(8) Anon; WO 9519970 1995 HCAPLUS
(9) Anon; WO 9521613 1995 HCAPLUS
(10) Anon; WO 9523141 1995 HCAPLUS
(11) Anon; WO 9524190 1995 HCAPLUS
(12) Anon; WO 9609294 1996 HCAPLUS
(13) Anon; WO 9633977 1996 HCAPLUS
(14) Anon; WO 9633978 1996 HCAPLUS
(15) Anon; WO 9633979 1996 HCAPLUS
(16) Anon; WO 9633980 1996 HCAPLUS
(17) Anon; WO 9633981 1996 HCAPLUS
(18) Anon; WO 9802434 1998 HCAPLUS
(19) Anon; WO 9802438 1998 HCAPLUS
(20) Anon; WO 9813350 1998 HCAPLUS
(21) Anon; WO 9843960 1998 HCAPLUS
(22) Bridges, A; J Med Chem 1996, V39, P267 HCAPLUS
(23) Burke, T; Drugs Future 1992, V17, P119
(24) Chang, C; J Nat Prod 1992, V55, P1529 HCAPLUS
(25) Dolle, R; J Med Chem 1994, V372, P2627
(26) Du, J; Am J Physiol 1995, V269(2 pt 1), P487
(27) Fry, D; Science 1994, V265, P1093 HCAPLUS
(28) Gattone, V; Development Biology 1995, V169(2), P504 HCAPLUS
(29) Gazit, A; J Med Chem 1996, V35(11), P2170
(30) Ife, R; J Med Chem 1992, V35(18), P3413 HCAPLUS
(31) Maguire, M; J Med Chem 1994, V37, P2129 HCAPLUS
(32) Nauta, J; Pediatric Research 1995, V37(6), P755 HCAPLUS
(33) Rewcastle, A; J Med Chem 1996, V39, P267
(34) Spada; US 5480883 1996 HCAPLUS
(35) Traxler; US 5686457 1997 HCAPLUS
(36) Wilson, P; Eur J Cell Biol 1993, V61(1), P131 HCAPLUS
(37) Wissner; US 6002008 1999 HCAPLUS

L40 ANSWER 44 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:310060 HCAPLUS
DN 135:74919
ED Entered STN: 02 May 2001
TI Molecular regulation of tumor cell vasculogenic mimicry by **tyrosine** phosphorylation: role of epithelial cell **kinase** (**Eck/EphA2**)
AU Hess, Angela R.; Seftor, Elisabeth A.; Gardner, Lynn M. G.; Carles-Kinch, Kelly; Schneider, Galen B.; Seftor, Richard E. B.; **Kinch, Michael S.**; Hendrix, Mary J. C.
CS Department of Anatomy and Cell Biology, University of Iowa College of Dentistry, Iowa City, IA, 52242-1109, USA
SO Cancer Research (**2001**), 61(8), 3250-3255
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB During embryogenesis, blood vessels are formed initially by the process of vasculogenesis, the in situ differentiation of mesenchymal cells into endothelial cells, which form a primitive, patterned vasculogenic network. This is followed by angiogenesis, the sprouting of new vessels from pre-existing vasculature, to yield a more refined microcirculation. However, we and our collaborators have recently described a process termed "vasculogenic mimicry," which consists of the formation of patterned, tubular networks by aggressive melanoma tumor cells (in three-dimensional cultures in vitro), that mimics endothelial-formed vasculogenic networks and correlates with poor clin. prognosis in patients. Previous microarray anal. from our laboratory comparing the highly aggressive vs. the poorly aggressive melanoma cells revealed a significant increased expression of **tyrosine kinases** associated with the aggressive melanoma phenotype. Because of the important role of **protein tyrosine kinases** in phosphorylating various signal transduction **proteins** that are critical for many cellular processes (e.g., cell adhesion, migration, and invasion), we examined whether **protein tyrosine kinases** are involved in melanoma vasculogenic mimicry. Immunofluorescence anal. of aggressive melanoma cells forming tubular networks in vitro showed that **tyrosine** phosphorylation activity colocalized specifically within areas of tubular networks formation. A **phosphotyrosine** profile of the aggressive melanoma cells capable of forming tubular networks indicated differences in **tyrosine** phosphorylated **proteins** compared with the poorly aggressive melanoma cells (incapable of forming tubular networks). Most notably, we identified epithelial cell **kinase** (**EphA2**) as being one **receptor tyrosine kinase** expressed and phosphorylated exclusively in the aggressive metastatic melanoma cells. Furthermore, general inhibitors of **protein tyrosine kinases** hindered tube formation, and transient knockout of **EphA2** abrogated the ability of tumor cells to form tubular structures. These results suggest that **protein tyrosine kinases**, particularly **EphA2**, are involved in the formation of tubular networks by aggressive melanoma tumor cells in vitro, which may represent a novel therapeutic target for further clin. investigation.
ST **EphA2 tyrosine kinase** phosphorylation uveal melanoma angiogenesis
IT Liver, neoplasm

(metastasis; **Eck/EphA2 kinase** in mol. regulation of melanoma vasculogenic mimicry by **tyrosine** phosphorylation)
IT Phosphorylation, biological
(**protein**; **Eck/EphA2 kinase** in mol. regulation of melanoma vasculogenic mimicry by **tyrosine** phosphorylation)
IT Eye, neoplasm
(uvea, melanoma, metastasis; **Eck/EphA2 kinase** in mol. regulation of melanoma vasculogenic mimicry by **tyrosine** phosphorylation)
IT Angiogenesis
(vasculogenic mimicry; **Eck/EphA2 kinase** in mol. regulation of melanoma vasculogenic mimicry by **tyrosine** phosphorylation)
IT 80449-02-1, **Protein tyrosine kinase**
149433-91-0, **EphA2 receptor tyrosine kinase**
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**Eck/EphA2 kinase** in mol. regulation of melanoma vasculogenic mimicry by **tyrosine** phosphorylation)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(2) Bissell, M; Am J Pathol 1999, V155, P675 MEDLINE
(3) Bittner, M; Nature 2000, V406, P536 HCAPLUS
(4) Burridge, K; J Cell Biol 1992, V119, P893 HCAPLUS
(5) Damsky, C; Curr Opin Cell Biol 1998, V10, P660 HCAPLUS
(6) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(7) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(8) Easty, D; Int J Cancer 1999, V84, P494 HCAPLUS
(9) Easty, D; J Investig Dermatol 1993, V101, P579
(10) Folkman, J; N Engl J Med 1995, V333, P1757 MEDLINE
(11) Fox, G; Oncogene 1995, V10, P897 HCAPLUS
(12) Graham, C; Am J Pathol 1994, V145, P510 MEDLINE
(13) Khwaja, A; J Biol Chem 1998, V273, P18793 HCAPLUS
(14) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(15) Maher, T; Histopathology 1998, V32, P217 MEDLINE
(16) Maniotis, A; Am J Pathol 1999, V155, P739 MEDLINE
(17) Miao, H; Nat Cell Biol 2000, V2, P62 HCAPLUS
(18) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(19) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(20) Pandey, A; Science 1995, V286, P567
(21) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(22) Potter, C; Trends Genet 2000, V16, P33 HCAPLUS
(23) Rosenburg, I; Am J Physiol 1997, V273, PG824
(24) Seftor, R; Cancer Metastasis Rev 1999, V18, P359 HCAPLUS
(25) Tian, X; Development 1995, V121, P1053
(26) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS
(27) Zhou, Y; J Clin Investig 1997, V99, P2139 HCAPLUS
(28) Zhou, Y; J Clin Investig 1997, V99, P2152 HCAPLUS

L40 ANSWER 45 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:227357 HCAPLUS
DN 135:3808
ED Entered STN: 30 Mar 2001
TI **EphA2** overexpression causes tumorigenesis of mammary epithelial cells

AU Zelinski, Daniel P.; Zantek, Nicole Dodge; Stewart, Jane C.; Irizarry, Armando R.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University, West Lafayette, IN, 47907-1246, USA
SO Cancer Research (**2001**), 61(5), 2301-2306
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB Elevated levels of **protein tyrosine** phosphorylation contribute to a malignant phenotype, although the **tyrosine kinases** that are responsible for this signaling remain largely unknown. Here we report increased levels of the **EphA2** (**ECK**) **protein tyrosine kinase** in clin. specimens and cell models of breast cancer. We also show that **EphA2** overexpression is sufficient to confer malignant transformation and tumorigenic potential on nontransformed (MCF-10A) mammary epithelial cells. The transforming capacity of **EphA2** is related to the failure of **EphA2** to interact with its cell-attached ligands. Interestingly, stimulation of **EphA2** reverses the malignant growth and invasiveness of **EphA2** -transformed cells. Taken together, these results identify **EphA2** as a powerful oncoprotein in breast cancer.
ST **EphA2 receptor tyrosine kinase** mammary epithelium tumorigenesis
IT Phenotypes
Signal transduction, biological
(**EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT Ligands
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(cell-attached ligands; **EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT Mammary gland
(epithelium; **EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT Mammary gland
(neoplasm; **EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT Phosphorylation, biological
(**protein**; **EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT Catenins
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(β-; **EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
IT **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(**EphA2** overexpression causes tumorigenesis of mammary epithelial cells)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(2) Bartley, T; Nature (Lond) 1994, V368, P558 HCAPLUS
(3) Birchmeier, W; Bioessays 1995, V17, P97 HCAPLUS
(4) Clark, G; Oncogene 1996, V12, P169 HCAPLUS
(5) Davis, S; Science (Washington DC) 1994, V266, P816 HCAPLUS
(6) Dickson, R; Endocr Rev 1995, V16, P559 HCAPLUS
(7) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(8) Fidler, I; Cancer: Principles and Practice of Oncology 1997, P135
(9) Frisch, S; Curr Opin Cell Biol 1997, V9, P701 HCAPLUS
(10) Giunciuglio, D; Int J Cancer 1995, V63, P815 HCAPLUS
(11) Keely, P; Trends Cell Biol 1998, V8, P101 HCAPLUS
(12) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(13) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(14) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(15) Miao, H; Nature Cell Biol 2000, V2, P62 HCAPLUS
(16) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(17) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(18) Pauley, R; Eur J Cancer Prev 1993, V2(Suppl 3), P67
(19) Roche, S; Curr Biol 1998, V8, P975 HCAPLUS
(20) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(21) Ruoslahti, E; Princess Takamatsu Symp 1994, V24, P99 MEDLINE
(22) Steeg, P; Am J Pathol 1996, V149, P733 HCAPLUS
(23) Takeda, H; Oncogene 1998, V16, P3019 HCAPLUS
(24) Volberg, T; EMBO J 1992, V11, P1733 HCAPLUS
(25) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(26) Weaver, V; Semin Cancer Biol 1995, V6, P175 HCAPLUS
(27) Weiner, L; Semin Oncol 1999, V26, P43 HCAPLUS
(28) Zantek, N; Cell Growth Differ 1999, V10, P629 HCAPLUS

L40 ANSWER 46 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:137403 HCAPLUS
DN 134:177365
ED Entered STN: 25 Feb 2001
TI Antibodies as a cancer diagnostic
IN **Kinch, Michael Scott**; Zantek, Nicole Dodge
PA Purdue Research Foundation, USA
SO PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-00
CC 15-3 (Immunochemistry)
Section cross-reference(s): 9, 14
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001012840	A2	20010222	WO 2000-US22669	20000817 <--
	WO 2001012840	A3	20010503		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2382655	AA	20010222	CA 2000-2382655	20000817 <--
	EP 1210603	A2	20020605	EP 2000-955686	20000817 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, SI, LT, LV, FI, RO, MK, CY, AL
JP 2003507023 T2 20030225 JP 2001-516927 20000817 <--
PRAI US 1999-149259P P 19990817 <--
WO 2000-US22669 W 20000817 <--
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001012840	ICM	C12Q001-00
WO 2001012840	ECLA	C07K016/32; G01N033/574V <--

AB Method and kits are provided for the detection and diagnosis of metastatic disease. More particularly, the methods and kits employ compds. that can detect **EphA2**, a specific epithelial cell **tyrosine kinase** that is overexpressed in metastatic tumor cells. In one embodiment the compound is an antibody capable of binding to an epitope of **EphA2.**

ST **EphA2 kinase** antibody cancer diagnosis

IT Lung, neoplasm
Neoplasm
(antibodies as a cancer diagnostic)

IT Antibodies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antibodies as a cancer diagnostic)

IT Blood analysis
Cerebrospinal fluid
Epitopes
Saliva
Test kits
Urine analysis
(antibodies as a cancer diagnostic in relation to)

IT Diagnosis
(cancer; antibodies as a cancer diagnostic)

IT Intestine, neoplasm
(colon; antibodies as a cancer diagnostic)

IT Immunoassay
(enzyme-linked immunosorbent assay; antibodies as a cancer diagnostic in relation to)

IT Cytometry
(flow; antibodies as a cancer diagnostic in relation to)

IT Antibodies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(labeled; antibodies as a cancer diagnostic)

IT Mammary gland
Prostate gland
(neoplasm; antibodies as a cancer diagnostic)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(antibodies as a cancer diagnostic in relation to)

IT 21820-51-9, **Phosphotyrosine**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antibodies as a cancer diagnostic in relation to)

L40 ANSWER 47 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:137006 HCAPLUS
DN 134:188192
ED Entered STN: 25 Feb 2001
TI Treatment of metastatic disease using compounds specific for **EphA2**

IN **Kinch, Michael Scott**
PA Purdue Research Foundation, USA
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM A61K031-00
ICS A61K039-395; A61K049-00; C07K002-00; C07K005-00; C07K016-28
CC 1-6 (Pharmacology)
Section cross-reference(s): 14, 15, 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001012172	A1	20010222	WO 2000-US22670	20000817 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2380888	AA	20010222	CA 2000-2380888	20000817 <--
	EP 1242060	A1	20020925	EP 2000-955687	20000817 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
	JP 2003516930	T2	20030520	JP 2001-516518	20000817 <--
PRAI	US 1999-149258P	P	19990817 <--		
	WO 2000-US22670	W	20000817 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001012172	ICM	A61K031-00
	ICS	A61K039-395; A61K049-00; C07K002-00; C07K005-00; C07K016-28
WO 2001012172	ECLA	A61K038/19; C07K016/32 <--

AB The present invention is directed to compds. and methods for the treatment of metastatic disease. The compds. of this invention have specificity for **EphA2**, an epithelial cell **tyrosine kinase** that is overexpressed in metastatic tumor cells. The compds. used in accordance with this invention may be provided in a pharmaceutical composition for treatment of metastatic disease. For example, an **EphA2** agonist, **EphrinA1**-Fc (0.5 mg/mL), increased the phosphorylation content of **EphA2** in MCFEphA2 cells. This **EphA2** stimulation reversed the effects of **EphA2** overexpression.

ST **EphA2 receptor tyrosine kinase** antibody metastasis; cancer metastasis diagnosis treatment **EphA2** antibody

IT Animal cell line
(B2D6, antibodies against; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Hybridoma
(antibodies against; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Diagnosis
(cancer, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Intestine, neoplasm

(colon, metastasis, inhibitors; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antitumor agents
Intestine, neoplasm
(colon, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Drug targeting
Immunotherapy
Luminescence
Protein sequences
(compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Growth factors, animal
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**ephrin** A1-Fc; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Epitopes
(extracellular, of **EphA2**; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Multiple myeloma
(fusion with lymph node cells; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Lymph node
(fusion with myeloma cells; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Drug delivery systems
(immunoconjugates; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antitumor agents
(lung, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antitumor agents
(mammary gland, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Lung, neoplasm
Mammary gland
(metastasis, inhibitors; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antitumor agents
Lung, neoplasm
(metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antibodies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(monoclonal, conjugates, with cytotoxic agents; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antibodies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); MFM (Metabolic formation); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(monoclonal; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Prostate gland
(neoplasm, metastasis, inhibitors; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Mammary gland
Prostate gland
(neoplasm, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Antitumor agents
(prostate gland, metastasis; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT Phosphorylation, biological
(**protein**; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT 67-43-6, Diethylenetriamine pentaacetic acid 10025-76-0, Europium trichloride
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(antibody label; compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(compds. specific for **EphA2** for diagnosis and treatment of metastatic disease using compds. specific for)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Huai, J; European Journal of Neuroscience 2000, V12, P179
(2) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(3) Lindberg, R; Molecular and Cellular Biology 1990, V10, P6316 HCAPLUS
(4) Nakamoto, M; International Journal of Biochemistry & Cell Biology 1999, V32, P7
(5) Walker-Daniels, J; The Prostate 1999, V41, P275 HCAPLUS
(6) Zantek, N; Cell Growth & Differentiation 1999, V10, P629 HCAPLUS

L40 ANSWER 48 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2001:15481** HCAPLUS
DN **134:220607**
ED Entered STN: 08 Jan 2001
TI The **ephrin**-A1 ligand and its **receptor, EphA2**, are expressed during tumor neovascularization
AU Ogawa, Kazushige; Pasqualini, Renata; Lindberg, Richard A.; Kain, Renate; Freeman, Andrew L.; Pasquale, Elena B.
CS The Burnham Institute, La Jolla, CA, 92037, USA
SO Oncogene (**2000**), 19(52), 6043-6052
CODEN: ONCNES; ISSN: 0950-9232
PB Nature Publishing Group
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 2
AB **Eph receptor tyrosine kinases** and their **ephrin** ligands have been implicated in embryonic vascular development and in in vivo models of angiogenesis. **Eph**

proteins may also regulate tumor neovascularization, but this role has not been previously investigated. To screen for **Eph proteins** expressed in tumor blood vessels, we used tumor xenografts grown in nude mice from MDA-MB-435 human breast cancer cells or KS1767 human Kaposi's sarcoma cells. By immunohistochem., the **ephrin**-A1 ligand and one of its **receptors**, **EphA2** , were detected throughout tumor vasculature. Double-labeling with anti-CD34 antibodies demonstrated that both **ephrin**-A1 and **EphA2** were expressed in xenograft endothelial cells and also tumor cells. Furthermore, **EphA2** was **tyrosine**-phosphorylated in the xenograft tumors, indicating that it was activated, presumably by interacting with **ephrin**-A1. **Ephrin**-A1 and **EphA2** were also detected in both the vasculature and tumor cells of surgically removed human cancers. In an in vitro angiogenesis model, a dominant neg. form of **EphA2 inhibited** capillary tube-like formation by human umbilical vein endothelial cells (HUVECs), demonstrating a requirement for **EphA receptor** signaling. These data suggest that **ephrin**-A1 and **EphA2** play a role in human cancers, at least in part by influencing tumor neovascularization. **Eph proteins** may represent promising new targets for antiangiogenic cancer treatments.

ST **ephrin EphA2 receptor** vascular endothelium tumor neovascularization

IT Sarcoma
(Kaposi's; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Lung, neoplasm
(adenocarcinoma, anaplastic; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Intestine, neoplasm
(colon, carcinoma; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Mammary gland
(disease, benign; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Signal transduction, biological
Stomach, neoplasm
(**ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Growth factors, animal
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**ephrin**-A1; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Mammary gland
(fibroadenoma; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Mammary gland
(gynecomastia; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Mammary gland
(neoplasm; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Angiogenesis
(neovascularization; **ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)

IT Kidney, neoplasm
(renal cell carcinoma; **ephrin**-A1 ligand and **EphA2**

receptor expression during human tumor neovascularization)
IT Lung, neoplasm
(squamous cell carcinoma; **ephrin**-A1 ligand and **EphA2** **receptor** expression during human tumor neovascularization)
IT Vein
(umbilical, endothelium; **ephrin**-A1 ligand and **EphA2** **receptor** expression during human tumor neovascularization)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(**ephrin**-A1 ligand and **EphA2 receptor** expression during human tumor neovascularization)
RE.CNT 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adams, R; Genes Dev 1999, V13, P295 HCAPLUS
(2) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(3) Asahara, T; Science 1997, V275, P964 HCAPLUS
(4) Bartley, T; Nature 1994, V368, P558 HCAPLUS
(5) Baumheter, S; Science 1993, V262, P436 MEDLINE
(6) Berclaz, G; Biochem Biophys Res Commun 1996, V226, P869 HCAPLUS
(7) Bobik, A; Tumour Angiogenesis 1997, P169 HCAPLUS
(8) Brooks, P; Science 1994, V264, P569 HCAPLUS
(9) Daniel, T; Kidney Int Suppl 1996, V57, PS73 HCAPLUS
(10) Davy, A; Genes Dev 1999, V13, P3125 HCAPLUS
(11) Dodelet, V; Oncogene in press 2000
(12) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(13) Easty, D; Int J Cancer 1999, V84, P494 HCAPLUS
(14) Eberhart, J; Dev Neurosci 2000, V22, P237 HCAPLUS
(15) Eph-Nomenclature-Committee; Cell 1997, V90, P403
(16) Flanagan, J; Annu Rev Neurosci 1998, V21, P309 HCAPLUS
(17) Flenniken, A; Dev Biol 1996, V179, P382 HCAPLUS
(18) Folkman, J; Cell 1996, V87, P1153 HCAPLUS
(19) Folkman, J; Nature Med 1995, V1, P27 HCAPLUS
(20) Fox, S; J Pathol 1995, V177, P369 MEDLINE
(21) Friedlander, M; Science 1995, V270, P1500 HCAPLUS
(22) Gale, N; Genes Dev 1999, V13, P1055 HCAPLUS
(23) Gasparini, G; Tumour Angiogenesis 1997, P29
(24) Gerety, S; Mol Cell 1999, V4, P403 HCAPLUS
(25) Hanahan, D; Cell 1996, V86, P353 HCAPLUS
(26) Hanahan, D; Science 1997, V277, P48 HCAPLUS
(27) Herndier, B; AIDS 1994, V8, P575 MEDLINE
(28) Hirai, H; Science 1987, V238, P1717 HCAPLUS
(29) Holash, J; Dev Biol 1995, V172, P683 HCAPLUS
(30) Holzman, L; Mol Cell Biol 1990, V10, P5830 HCAPLUS
(31) Huynh-Do, U; EMBO J 1999, V18, P2165 HCAPLUS
(32) Kalo, M; Cell Tissue Res 1999, V298, P1 HCAPLUS
(33) Kiyokawa, E; Cancer Res 1994, V54, P3645 HCAPLUS
(34) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(35) Magal, E; J Neurosci Res 1996, V43, P735 HCAPLUS
(36) Maru, Y; Mol Cell Biol 1998, V8, P3770
(37) Maru, Y; Oncogene 1990, V5, P445 HCAPLUS
(38) McBride, J; Mech Dev 1998, V77, P201 HCAPLUS
(39) Mellitzer, G; Nature 1999, V400, P77 HCAPLUS
(40) Merenmies, J; Cell Growth Differ 1997, V8, P3 HCAPLUS
(41) Miao, H; Nature Cell Biol 2000, V2, P62 HCAPLUS
(42) Pandey, A; Science 1995, V268, P567 HCAPLUS
(43) Pasqualini, R; Nat Biotechnol 1997, V15, P542 HCAPLUS
(44) Price, J; Cancer Res 1990, V50, P717 MEDLINE

(45) Risau, W; Annu Rev Cell Dev Biol 1995, V11, P73 HCAPLUS
(46) Risau, W; Nature 1997, V386, P671 MEDLINE
(47) Sarma, V; J Immunol 1992, V148, P3302 HCAPLUS
(48) Sato, T; Nature 1995, V376, P70 HCAPLUS
(49) Soans, C; J Cell Biol 1996, V135, P781 HCAPLUS
(50) Soans, C; Oncogene 1994, V9, P3353 HCAPLUS
(51) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(52) Suri, C; Cell 1996, V87, P1171 HCAPLUS
(53) Takahashi, H; Oncogene 1995, V11, P879 HCAPLUS
(54) UICC; Classification of Malignant Tumors 5th edn 1997
(55) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(56) Walker-Daniels, J; Prostate 1999, V41, P275 HCAPLUS
(57) Wang, H; Cell 1998, V93, P741 HCAPLUS
(58) Xu, Q; Nature 1999, V399, P267 HCAPLUS
(59) Zisch, A; Oncogene 2000, V19, P177 HCAPLUS

L40 ANSWER 49 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **2000:790501** HCAPLUS
DN **133:350203**
ED Entered STN: 10 Nov 2000
TI Substituted 3-cyano-[1.7]-, -[1.5]-, and -[1.8]-naphthyridine **inhibitors** of **tyrosine kinases**
IN Wissner, Allan; Hamann, Philip Ross; Yamashita, Ayako
PA American Cyanamid Company, USA
SO PCT Int. Appl., 155 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07D471-04
ICS A61K031-4375; A61P035-00; C07D471-04; C07D221-00; C07D221-00
CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 1
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000066583	A1	20001109	WO 2000-US10250	20000418 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2365212	AA	20001109	CA 2000-2365212	20000418 <--
	BR 2000009870	A	20020108	BR 2000-9870	20000418 <--
	EP 1171440	A1	20020116	EP 2000-926043	20000418 <--
	EP 1171440	B1	20040414		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6355636	B1	20020312	US 2000-550824	20000418 <--
	JP 2002543198	T2	20021217	JP 2000-615613	20000418 <--
	NZ 514576	A	20040227	NZ 2000-514576	20000418 <--
	AT 264328	E	20040415	AT 2000-926043	20000418 <--
	PT 1171440	T	20040730	PT 2000-926043	20000418 <--
	AU 776962	B2	20040930	AU 2000-44639	20000418 <--
	ES 2216884	T3	20041101	ES 2000-926043	20000418 <--
	ZA 2001008015	A	20030102	ZA 2001-8015	20010928 <--
	NO 2001005062	A	20011018	NO 2001-5062	20011018 <--

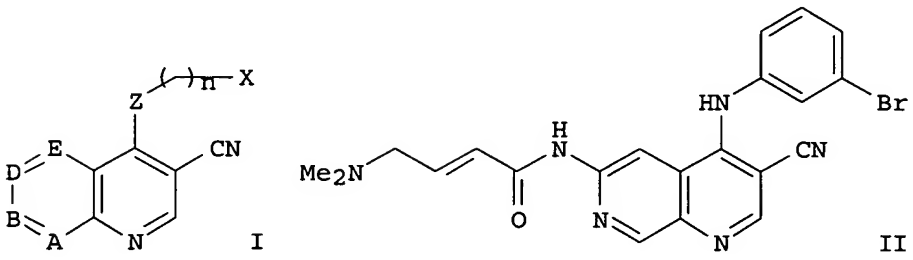
US 2002165229	A1	20021107	US 2001-32587	20011221	<--
US 6548496	B2	20030415			
HK 1040077	A1	20040910	HK 2002-101412	20020225	<--
PRAI US 1999-155255P	P	19990421	<--		
US 1999-295507	A	19990421	<--		
US 2000-550824	A3	20000418	<--		
WO 2000-US10250	W	20000418	<--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2000066583	ICM	C07D471-04	
	ICS	A61K031-4375; A61P035-00; C07D471-04; C07D221-00; C07D221-00	
WO 2000066583	ECLA	C07D471/04+221B+221B+2	<--
US 6355636	NCL	514/234.500; 544/127.000; 546/014.000; 546/122.000	
	ECLA	A61K031/47; A61K031/498; A61K031/506; A61K031/538; C07D471/04+221B+221B+2	<--
US 2002165229	NCL	514/234.500; 544/127.000; 546/014.000; 546/122.000	
	ECLA	A61K031/47; A61K031/498; A61K031/506; A61K031/538; C07D471/04+221B+221B+2	<--

OS MARPAT 133:350203

GI



AB This invention provides title compds. I [X = certain (un)substituted cycloalkyl, pyridinyl, pyrimidinyl, Ph, bicyclic aryl, or bicyclic heteroaryl; Z = NH, O, S, or NR; R = alkyl or carboalkyl; A:BD:E = (un)substituted CH:CHCH:N, CH:NCH:CH, N:CHCH:CH; n = 0-1; with numerous provisos] and their pharmaceutically acceptable salts. The compds. are **inhibitors** of **protein tyrosine kinase**, useful for treating certain cancers, polycystic kidney disease, colonic polyps, etc. A variety of example compds. and intermediates were prepared in 86 examples. For instance, 4-bromobut-2-enoyl chloride (prepared from TMS ester) was amidated with 6-amino-4-(3-bromophenylamino)-1,7-naphthyridine-3-carbonitrile, and the resultant halo amide (1:1 mixture of chloro and bromo compds.) was rebrominated with NaBr and aminated with Me2NH to give title compound II. The latter compound **inhibited** growth of a variety of human tumor cell lines in vitro, e.g., SKBR3 with an IC50 of 0.03565 μM/mL. **Inhibitions** of various **receptor tyrosine kinases** by I were determined for selected compds.

ST cyanonaphthyridine prepn **inhibitor protein tyrosine kinase**; naphthyridine cyano prepn antitumor

IT Antitumor agents
(bladder; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Intestine, neoplasm
Intestine, neoplasm

(colon, **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Intestine, neoplasm
(colon, polyp, treatment; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
(colon; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
(esophagus; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Vascular endothelial growth factor **receptors**
RL: BPR (Biological process); BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study); PROC (Process)
(gene KDR, **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Growth factor **receptors**
RL: BPR (Biological process); BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study); PROC (Process)
(heregulin, erbB-2, **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Kidney, neoplasm
Kidney, neoplasm
Lung, neoplasm
Lung, neoplasm
Ovary, neoplasm
Ovary, neoplasm
Stomach, neoplasm
Stomach, neoplasm
(**inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Epidermal growth factor **receptors**
Vascular endothelial growth factor **receptors**
RL: BPR (Biological process); BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study); PROC (Process)
(**inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
Antitumor agents
(kidney; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
Antitumor agents
(larynx tumor **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
Antitumor agents
(lung; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
(mammary gland; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Antitumor agents
(mouth; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
IT Bladder
Bladder

Esophagus
Esophagus
Mammary gland
Mammary gland
Mouth
Mouth
(neoplasm, **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Antitumor agents
Antitumor agents
(ovary; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Kidney, disease
(polycystic, treatment; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Antitumor agents
(preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Antitumor agents
Antitumor agents
(stomach; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT Larynx
Larynx
(tumor **inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT 305370-85-8P, 4-(3-Bromophenylamino)-6-nitro-1,8-naphthyridine-3-carbonitrile 305370-87-0P, 6-Amino-4-(3-bromophenylamino)1,8-naphthyridine-3-carbonitrile 305370-90-5P, 4-(3-Chloro-4-fluorophenylamino)-6-nitro-1,8-naphthyridine-3-carbonitrile 305370-92-7P, 6-Amino-4-(3-chloro-4-fluorophenylamino)-1,8-naphthyridine-3-carbonitrile 305371-19-1P, 4-(3-Bromophenylamino)-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-20-4P, 4-(3-Bromophenylamino)-6-(4-methoxybenzylamino)-1,7-naphthyridine-3-carbonitrile 305371-21-5P, 6-Amino-4-(3-bromophenylamino)-1,7-naphthyridine-3-carbonitrile 305371-30-6P, 6-Fluoro-4-(3-hydroxy-4-methylphenylamino)-1,7-naphthyridine-3-carbonitrile 305371-31-7P, 6-Fluoro-4-(4-phenoxyphenylamino)-1,7-naphthyridine-3-carbonitrile 305371-32-8P, 4-(2,4-Dichlorophenylamino)-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-33-9P, 4-(3-Chloro-4-fluorophenylamino)-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-34-0P, 4-(4-Chloro-2-fluorophenylamino)-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-47-5P, 4-(3-Bromophenylamino)-6-(trimethylsilanylethynyl)-1,7-naphthyridine-3-carbonitrile
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(drug candidate; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT 305370-86-9P, 4-(3-Bromophenylamino)-6-nitro-1,8-naphthyridine-3-carbonitrile hydrochloride 305370-88-1P, N-[5-(3-Bromophenylamino)-6-cyano-1,8-naphthyridin-3-yl]acrylamide 305370-89-2P, But-2-ynoic acid [5-(3-bromophenylamino)-6-cyano-1,8-naphthyridin-3-yl]amide 305370-91-6P, 4-(3-Chloro-4-fluorophenylamino)-6-nitro-1,8-naphthyridine-3-carbonitrile hydrochloride 305370-93-8P, But-2-ynoic acid [5-(3-chloro-4-fluorophenylamino)-6-cyano-1,8-naphthyridin-3-yl]amide 305370-94-9P, N-[5-(3-Bromophenylamino)-6-cyano-1,8-naphthyridin-3-yl]-2-chloroacetamide 305370-95-0P, 4-(Dimethylamino)but-2-enoic acid [5-(3-bromophenylamino)-6-cyano-1,8-naphthyridin-3-yl]amide

305370-99-4P, 4-(3-Bromophenylamino)-6-ethoxy-1,5-naphthyridine-3-carbonitrile 305371-01-1P, 4-(3-Bromophenylamino)-1,5-naphthyridine-3-carbonitrile 305371-08-8P, 4-(3-Hydroxy-4-methylphenylamino)-6-(3-morpholin-4-ylpropoxy)-1,5-naphthyridine-3-carbonitrile 305371-09-9P, 4-(3-Bromophenylamino)-6-(3-morpholin-4-ylpropoxy)-1,5-naphthyridine-3-carbonitrile 305371-10-2P, 4-(3-Hydroxy-4-methylphenylamino)-6-(2-morpholin-4-ylethoxy)-1,5-naphthyridine-3-carbonitrile 305371-11-3P, 4-(3-Bromophenylamino)-6-(2-morpholin-4-ylethoxy)-1,5-naphthyridine-3-carbonitrile 305371-14-6P, 6-Amino-4-(3-bromophenylamino)-1,5-naphthyridine-3-carbonitrile 305371-23-7P, But-2-ynoic acid [4-(3-bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]amide 305371-24-8P, 4-Dimethylaminobut-2-enoic acid [4-(3-bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]amide 305371-27-1P, 4-(3-Bromophenylamino)-6-(2-morpholin-4-ylethylamino)1,7-naphthyridine-3-carbonitrile 305371-28-2P, 4-(3-Bromophenylamino)-6-methylamino-1,7-naphthyridine-3-carbonitrile 305371-29-3P, 1-[4-(3-Bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]-4-dimethylaminopyridinium fluoride 305371-35-1P, 4-(4-Chloro-2-fluorophenoxy)-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-36-2P, 6-(2-Dimethylaminoethoxy)-4-(4-phenoxyphenylamino)-1,7-naphthyridine-3-carbonitrile 305371-37-3P, 4-(3-Chloro-4-fluorophenylamino)-6-(2-dimethylaminoethoxy)-1,7-naphthyridine-3-carbonitrile 305371-38-4P, 4-(2,4-Dichlorophenylamino)-6-(2-dimethylaminoethoxy)-1,7-naphthyridine-3-carbonitrile 305371-39-5P, 4-(4-Chloro-2-fluorophenylamino)-6-(2-dimethylaminoethoxy)-1,7-naphthyridine-3-carbonitrile 305371-40-8P, 4-(3-Bromophenylamino)-6-(2-dimethylaminoethoxy)-1,7-naphthyridine-3-carbonitrile 305371-41-9P, 6-(2-Dimethylaminoethoxy)-4-(3-hydroxy-4-methylphenylamino)-1,7-naphthyridine-3-carbonitrile 305371-44-2P, 4-(3-Bromophenylamino)-6-chloro-1,7-naphthyridine-3-carbonitrile 305371-49-7P, 4-(3-Bromophenylamino)-6-ethynyl-1,7-naphthyridine-3-carbonitrile 305371-50-0P, 1-[4-(3-Bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]-4-dimethylaminopyridinium
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT 79079-06-4, Epidermal Growth Factor **Receptor Kinase** 80449-02-1, **Protein tyrosine kinase** 142243-02-5, Mitogen Activated **Protein Kinase** 142805-58-1, MAPK **kinase** **149433-91-0**, **ECK kinase**
RL: BPR (Biological process); BSU (Biological study, unclassified); MSC (Miscellaneous); BIOL (Biological study); PROC (Process)
(**inhibitors**; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT 456-24-6P, 2-Fluoro-5-nitropyridine 1827-27-6P, 6-Fluoropyridin-3-ylamine 4441-30-9P, 3-Morpholinopropanol 5350-93-6P, 6-Chloropyridin-3-ylamine 13280-03-0P, 4-Chlorobut-2-ynoic acid 20629-35-0P, 4-Bromocrotonic acid 31594-45-3P, 2-Ethoxy-5-nitropyridine 37616-36-7P, Sodium(2-dimethylaminoethoxide) 45813-02-3P, 1-Methyl-4-prop-2-ynylpiperazine 51544-74-2P, 4-Bromo-2-butenoyl chloride 52025-34-0P, 2-Ethoxy-5-aminopyridine 118764-05-9P, 4-Dimethylaminobut-2-ynoic acid 171178-41-9P, (6-Fluoropyridin-3-yl)carbamic acid tert-butyl ester 171178-42-0P, 5-tert-Butoxycarbonylamino-2-fluoroisonicotinic acid 171178-45-3P, (6-Chloropyridin-3-yl)carbamic acid tert-butyl ester 171178-46-4P, 5-tert-Butoxycarbonylamino-2-chloroisonicotinic acid 198149-15-4P, (2S)-2-(Methoxymethyl)-1-prop-2-ynylpyrrolidine 214487-27-1P, 4-(4-Methylpiperazin-1-yl)but-2-ynoic acid 220699-97-8P,

Bis(2-methoxyethyl)(prop-2-ynyl)amine 220699-98-9P, 4-[Bis(2-methoxyethyl)amino]but-2-ynoic acid 220699-99-0P, (2-Methoxyethyl)methylprop-2-ynylamine 220700-00-5P, 4-[N-(2-Methoxyethyl)-N-methylamino]but-2-ynoic acid 220700-02-7P 220700-03-8P, 4-(Allylmethylamino)but-2-ynoic acid 220700-04-9P, 4-(2-Methoxyethoxy)but-2-ynoic acid 220700-05-0P, 4-(Methoxymethoxy)but-2-ynoic acid 263148-94-3P, 4-[(2S)-2-(Methoxymethyl)pyrrolidin-1-yl]but-2-ynoic acid 263148-96-5P, 4-(1,4-Dioxa-8-azaspiro[4.5]dec-8-yl)but-2-ynoic acid 263148-97-6P, 3-(1,4-Dioxa-8-azaspiro[4.5]dec-8-yl)prop-1-yne 305370-82-5P, 2-(2-Chloro-5-nitropyridine-3-carbonyl)-3-(dimethylamino)acrylonitrile 305370-83-6P, 6-Nitro-4-oxo-1,4-dihydro-1,8-naphthyridine-3-carbonitrile 305370-84-7P, 4-Chloro-6-nitro-1,8-naphthyridine-3-carbonitrile 305370-96-1P, 2-Cyano-3-(6-ethoxypyridin-3-ylamino)acrylic acid ethyl ester 305370-97-2P, 6-Ethoxy-4-hydroxy-1,5-naphthyridine-3-carbonitrile 305370-98-3P, 4-Chloro-6-ethoxy-1,5-naphthyridine-3-carbonitrile 305371-00-0P, 4-Hydroxy-1,5-naphthyridine-3-carbonitrile 305371-02-2P, 4-Chloro-1,5-naphthyridine-3-carbonitrile 305371-03-3P, 2-(3-Morpholin-4-ylpropoxy)-5-nitropyridine 305371-04-4P, 2-Cyano-3-[[6-(3-morpholin-4-ylpropoxy)pyridin-3-yl]amino]acrylic acid ethyl ester 305371-05-5P, 2-(3-Morpholin-4-ylpropoxy)-5-aminopyridine 305371-06-6P, 4-Hydroxy-6-(3-morpholin-4-ylpropoxy)-1,5-naphthyridine-3-carbonitrile 305371-07-7P, 4-Chloro-6-(3-morpholin-4-ylpropoxy)-1,5-naphthyridine-3-carbonitrile 305371-12-4P, 6-Acetamido-4-hydroxy-1,5-naphthyridine-3-carbonitrile 305371-13-5P, 6-Acetamido-4-chloro-1,5-naphthyridine-3-carbonitrile 305371-15-7P, 5-tert-Butoxycarbonylamino-2-fluoroisonicotinic acid methyl ester 305371-16-8P, [6-Fluoro-4-(3-nitrilopropionyl)pyridin-3-yl]carbamic acid tert-butyl ester 305371-17-9P, 6-Fluoro-4-hydroxy-1,7-naphthyridine-3-carbonitrile 305371-18-0P, 4-Chloro-6-fluoro-1,7-naphthyridine-3-carbonitrile 305371-22-6P, 6-Amino-4-(4-methoxybenzylamino)-1,7-naphthyridine-3-carbonitrile 305371-25-9P, 4-Bromobut-2-enoic acid [4-(3-bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]amide 305371-26-0P, 4-Chlorobut-2-enoic acid [4-(3-bromophenylamino)-3-cyano-1,7-naphthyridin-6-yl]amide 305371-42-0P, 5-tert-Butoxycarbonylamino-2-chloroisonicotinic acid methyl ester 305371-43-1P, 6-Chloro-4-hydroxy-1,7-naphthyridine-3-carbonitrile 305371-45-3P, 4,6-Dichloro-1,7-naphthyridine-3-carbonitrile 305371-46-4P, 4-Hydroxy-6-(trimethylsilanylethynyl)-1,7-naphthyridine-3-carbonitrile 305371-48-6P, 4-Chloro-6-trimethylsilanylethynyl-1,7-naphthyridine-3-carbonitrile
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)

IT 75-05-8, Acetonitrile, reactions 79-04-9, Chloroacetyl chloride 94-05-3, Ethyl(ethoxymethylene)cyanoacetate 106-96-7, Propargyl bromide 107-19-7, Propargyl alcohol 107-30-2, Chloromethyl methyl ether 108-01-0, 2-Dimethylaminoethanol 109-01-3, 1-Methylpiperazine 109-86-4, 2-Methoxyethanol 110-91-8, Morpholine, reactions 111-95-5 139-59-3, 4-Phenoxyaniline 177-11-7, 1,4-Dioxa-8-azaspiro[4.5]decane 348-62-9, 4-Chloro-2-fluorophenol 367-21-5, 3-Chloro-4-fluoroaniline 462-08-8, 3-Aminopyridine 554-00-7, 2,4-Dichloroaniline 590-93-2, 2-Butynoic acid 591-19-5, 3-Bromoaniline 622-40-2, 2-Morpholinoethanol 624-65-7, Propargyl chloride 627-18-9 627-37-2, Allylmethylamine 814-68-6, Acryloyl chloride 1066-54-2, Trimethylsilanylethyne 1117-71-1, Methyl 4-bromocrotonate 1122-58-3, 4-Dimethylaminopyridine 2038-03-1, N-(2-Aminoethyl)morpholine 2393-23-9, 4-Methoxybenzylamine 2407-68-3, 3-Dimethylaminoacrylonitrile 2835-95-2, 3-Hydroxy-4-methylaniline 4214-76-0, 2-Amino-5-nitropyridine 4548-45-2, 2-Chloro-5-nitropyridine 4637-24-5, Dimethylformamide dimethyl acetal 7223-38-3, 1-Dimethylamino-2-propyne 24424-99-5, Di-tert-butyl

dicarbonate 38256-93-8, N-(2-Methoxyethyl)methylamine 42959-38-6, 3-Carboxy-2-chloro-5-nitropyridine 57946-56-2, 4-Chloro-2-fluoroaniline 63126-47-6, (S)-2-(Methoxymethyl)pyrrolidine 79863-92-6, Trimethylsilyl 4-bromo-2-butenoate
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation of substituted cyanonaphthyridine **inhibitors** of **tyrosine kinases**)
RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) American Cyanamid Co; WO 9843960 A 1998 HCAPLUS
(2) Zeneca; WO 9813350 A 1998 HCAPLUS

L40 ANSWER 50 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:108659 HCAPLUS
DN 132:234707
ED Entered STN: 16 Feb 2000
TI Activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation
AU Miao, Hui; Burnett, Elisabeth; **Kinch, Michael**; Simon, Erin; Wang, Bingcheng
CS Rammelkamp Center for Research, MetroHealth Campus, Case Western Reserve University School of Medicine, Cleveland, OH, 44109, USA
SO Nature Cell Biology (**2000**), 2(2), 62-69
CODEN: NCBIFN; ISSN: 1465-7392
PB Macmillan Magazines Ltd
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
AB Interactions between **receptor tyrosine kinases** of the **Eph** family and their ligands, **ephrins**, are implicated in establishment of organ boundaries and repulsive guidance of cell migration during development, but the mechanisms by which this is achieved are unclear. Here we show that activation of endogenous **EphA2 kinase** induces an inactive conformation of integrins and inhibits cell spreading, migration and integrin-mediated adhesion. Moreover, **EphA2** is constitutively associated with focal-adhesion **kinase** (FAK) in resting cells. Within one minute after stimulation of **EphA2** with its ligand, **ephrin**-A1, the **protein tyrosine** phosphatase SHP2 is recruited to **EphA2**; this is followed by dephosphorylation of FAK and paxillin, and dissociation of the FAK-**EphA2** complex. We conclude that **Eph kinases** mediate some of their functions by neg. regulating integrins and FAK.
ST **EphA2** FAK **kinase** dephosphorylation **ephrinA1** integrin cell migration adhesion
IT Integrins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation)
IT Cell adhesion
Cell migration
(activation of **EphA2 kinase** suppresses integrin function and inhibits)
IT Spreading
(biol.; activation of **EphA2 kinase** suppresses integrin function and inhibits)
IT **Proteins**, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(**ephrin**-A1; activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation)
IT Phosphorylation, biological
(**protein**; activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation)
IT 144114-16-9, Focal adhesion **kinase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(complex with **EphA2 kinase**; activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(complex with focal adhesion **kinase**; activation of **EphA2 kinase** suppresses integrin function and causes focal-adhesion-**kinase** dephosphorylation)
RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Calalb, M; Mol Cell Biol 1995, V15, P954 HCAPLUS
(2) Cary, L; J Cell Sci 1996, V109, P1787 HCAPLUS
(3) Cirri, P; J Biol Chem 1998, V273, P32522 HCAPLUS
(4) Davis, S; Science 1994, V266, P816 HCAPLUS
(5) Defilippi, P; Exp Cell Res 1995, V221, P141 HCAPLUS
(6) Drescher, U; Cell 1995, V82, P359 HCAPLUS
(7) Eph Nomenclature Committe; Cell 1997, V90, P403
(8) Faull, R; J Cell Biol 1993, V121, P155 HCAPLUS
(9) Flenniken, A; Dev Biol 1996, V179, P382 HCAPLUS
(10) Gailit, J; J Biol Chem 1988, V263, P12927 HCAPLUS
(11) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(12) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(13) Gilmore, A; Mol Biol Cell 1996, V7, P1209 HCAPLUS
(14) Guan, J; Nature 1992, V358, P690 HCAPLUS
(15) Hock, B; Proc Natl Acad Sci 1998, V95, P9779 HCAPLUS
(16) Holland, S; EMBO J 1997, V16, P3877 HCAPLUS
(17) Huynh-Do, U; EMBO J 1999, V18, P2165 HCAPLUS
(18) Hynes, R; Cell 1987, V48, P549 HCAPLUS
(19) Krull, C; Curr Biol 1997, V7, P571 HCAPLUS
(20) Lauffenburger, D; Cell 1996, V84, P359 HCAPLUS
(21) Lemmon, V; Neuron 1989, V2, P1597 HCAPLUS
(22) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(23) Meima, L; Eur J Neurosci 1997, V9, P177 MEDLINE
(24) Meima, L; Mol Cell Neurosci 1997, V9, P314 HCAPLUS
(25) Mellitzer, G; Nature 1999, V400, P77 HCAPLUS
(26) Neel, B; Curr Opin Cell Biol 1997, V9, P193 HCAPLUS
(27) O'Toole, T; J Cell Biol 1994, V124, P1047 HCAPLUS
(28) Pandey, A; Curr Biol 1995, V5, P986 HCAPLUS
(29) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(30) Retta, S; Exp Cell Res 1996, V229, P307 HCAPLUS
(31) Richardson, A; Bioessays 1995, V17, P229 HCAPLUS
(32) Richardson, A; Mol Cell Biol 1997, V17, P6906 HCAPLUS
(33) Richardson, A; Nature 1996, V380, P538 HCAPLUS
(34) Romer, L; Mol Biol Cell 1994, V5, P349 HCAPLUS
(35) Schaller, M; J Cell Biol 1995, V130, P1181 HCAPLUS
(36) Schaller, M; Mol Cell Biol 1995, V15, P2635 MEDLINE
(37) Schlaepfer, D; Trends Cell Biol 1998, V8, P151 HCAPLUS

(38) Schwartz, M; Annu Rev Cell Dev Biol 1995, V11, P549 HCAPLUS
(39) Smith, A; Curr Biol 1997, V7, P561 HCAPLUS
(40) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(41) Stein, E; J Biol Chem 1996, V271, P23588 HCAPLUS
(42) Tonks, N; Cell 1996, V87, P365 HCAPLUS
(43) Torres, R; Neuron 1998, V21, P1453 HCAPLUS
(44) van de Wiel-van Kemenade, E; J Cell Biol 1992, V117, P461 HCAPLUS
(45) Wang, H; Cell 1998, V93, P741 HCAPLUS
(46) Wang, H; Neuron 1997, V18, P383 HCAPLUS
(47) Xu, Q; Nature 1999, V399, P267 HCAPLUS
(48) Yamauchi, K; J Biol Chem 1995, V270, P17716 HCAPLUS
(49) Zisch, A; Oncogene 1998, V16, P2657 HCAPLUS

L40 ANSWER 51 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:811742 HCAPLUS
DN 132:235140
ED Entered STN: 26 Dec 1999
TI Overexpression of the **EphA2 tyrosine kinase** in prostate cancer
AU Walker-Daniels, J.; Coffman, K.; Azimi, M.; Rhim, J. S.; Bostwick, D. G.; Snyder, P.; Kerns, B. J.; Waters, D. J.; **Kinch, M. S.**
CS Department of Basic Medical Sciences, Purdue University, West Lafayette, IN, USA
SO Prostate (New York) (**1999**), 41(4), 275-280
CODEN: PRSTDS; ISSN: 0270-4137
PB Wiley-Liss, Inc.
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB BACKGROUND. Mols. that are highly expressed by human prostate cancers may serve as therapeutically relevant targets or tumor markers. **Tyrosine kinases** are frequently over-expressed in metastatic tumor cells and this prompted us to screen for **tyrosine kinases** that are overexpressed in prostate cancer cells. METHODS. Expression levels of the **EphA2 receptor tyrosine kinase** were determined by Western blot anal. in canine and human prostate cancer cell lines and in immortalized and transformed variants of 267B1 prostatic epithelial cells. **EphA2** levels in benign human prostate and prostate cancers were also determined in formalin-fixed, paraffin-embedded tissues using immunohistochem. staining. RESULTS. Metastatic prostate cancer cells overexpressed **EphA2** by 10-100 fold as compared with non-invasive prostatic epithelial cells. **EphA2** immunoreactivity in vivo was also significantly greater in human prostate cancers as compared with benign prostate epithelium. CONCLUSIONS. The **EphA2 receptor tyrosine kinase** is differentially expressed in human and canine prostate cancer cell lines and overexpressed in human prostate cancers as compared with benign prostate tissues. Metastasis-derived canine prostate carcinoma cell lines overexpress **EphA2** and may provide pre-clin. models to further evaluate the role of **EphA2** in prostate carcinogenesis. Further investigations are needed to determine the utility of **EphA2** as a tumor marker and a novel target in human prostate cancer.
ST **EphA2 tyrosine kinase** prostate cancer
IT Diagnosis
(cancer; overexpression of the **EphA2 tyrosine kinase** in canine and human prostate cancer cells)
IT Prostate gland
(neoplasm, metastasis; overexpression of the **EphA2 tyrosine kinase** in canine and human prostate cancer

cells)
IT Prostate gland
(neoplasm; overexpression of the **EphA2 tyrosine kinase** in canine and human prostate cancer cells)
IT Dog (Canis familiaris)
Tumor markers
(overexpression of the **EphA2 tyrosine kinase** in canine and human prostate cancer cells)
IT **149433-91-0, EphA2 receptor tyrosine kinase**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(overexpression of the **EphA2 tyrosine kinase** in canine and human prostate cancer cells)
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Oncogene 1994, V9, P1461 HCAPLUS
(2) Baselga, J; Cancer Res 1998, V58, P2825 HCAPLUS
(3) Easty, D; Int J Cancer 1995, V60, P129 HCAPLUS
(4) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(5) Grasso, A; Oncogene 1997, V15, P2705 HCAPLUS
(6) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(7) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(8) Kondapaka, B; Mol Cell Endocrinol 1996, V117, P53 HCAPLUS
(9) Kuettel, M; Cancer Res 1996, V56, P5 HCAPLUS
(10) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(11) Nemoto, T; Pathobiology 1997, V65, P195 HCAPLUS
(12) Pandey, A; Curr Biol 1995, V5, P986 HCAPLUS
(13) Parda, D; Prostate 1993, V23, P91 HCAPLUS
(14) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(15) Patarca, R; Crit Rev Oncogenesis 1996, V7, P5
(16) Press, M; Prog Clin Biol Res 1990, V354A, P209 MEDLINE
(17) Rhim, J; Crit Rev Oncogenesis 1997, V8, P305 HCAPLUS
(18) Robinson, D; Proc Natl Acad Sci 1996, V93, P5958 HCAPLUS
(19) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(20) Tremblay, L; Int J Cancer 1996, V68, P164 HCAPLUS
(21) Visakorpi, T; Mod Pathol 1992, V5, P643 MEDLINE
(22) Webber, M; Prostate 1997, V30, P58 HCAPLUS
(23) Witte, O; Cancer Res 1993, V53, P485 HCAPLUS

L40 ANSWER 52 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:639316 HCAPLUS
DN 131:334871
ED Entered STN: 08 Oct 1999
TI E-cadherin regulates the function of the **EphA2 receptor tyrosine kinase**
AU Zantek, Nicole Dodge; Azimi, Minoudokht; Fedor-Chaiken, Mary; Wang, Bingcheng; Brackenbury, Robert; **Kinch, Michael S.**
CS Department of Basic Medical Sciences and Purdue Cancer Center, Purdue University, West Lafayette, IN, 47907, USA
SO Cell Growth & Differentiation (**1999**), 10(9), 629-638
CODEN: CGDIE7; ISSN: 1044-9523
PB American Association for Cancer Research
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
Section cross-reference(s): 14
AB **EphA2** is a member of the **Eph** family of **receptor tyrosine kinases**, which are increasingly understood to play critical roles in disease and development.

We report here the regulation of **EphA2** by E-cadherin. In nonneoplastic epithelia, **EphA2** was **tyrosine** -phosphorylated and localized to sites of cell-cell contact. These properties required the proper expression and functioning of E-cadherin. In breast cancer cells that lack E-cadherin, the **phosphotyrosine** content of **EphA2** was decreased, and **EphA2** was redistributed into membrane ruffles. Expression of E-cadherin in metastatic cells restored a more normal pattern of **EphA2** phosphorylation and localization. Activation of **EphA2**, either by E-cadherin expression or antibody-mediated aggregation, decreased cell-extracellular matrix adhesion and cell growth. Altogether, this demonstrates that **EphA2** function is dependent on E-cadherin and suggests that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2.**

ST **EphA2 receptor tyrosine kinase** localization phosphorylation E cadherin; mammary gland epithelium breast cancer metastasis **EphA2** E cadherin; cell adhesion proliferation cancer metastasis **EphA2** E cadherin

IT Cadherins
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(E-; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Cell junction
(**EphA2** at; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Mammary gland
(epithelium, **EphA2** in; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Cell junction
(focal contact; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Cell adhesion
Cell proliferation
(localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Organelle
(membrane ruffles, **EphA2** in; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Mammary gland
(neoplasm, **EphA2** in; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)

IT Mammary gland
(neoplasm, metastasis, **EphA2** in relation to; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)
IT Phosphorylation, biological
(**protein**, **tyrosine**; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)
IT Cell membrane
(ruffles, **EphA2** in; localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)
IT **149433-91-0**, **EphA2 receptor tyrosine kinase**
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(localization and phosphorylation of **EphA2 receptor tyrosine kinase** is dependent on E-cadherin and evidence that loss of E-cadherin function may alter neoplastic cell growth and adhesion via effects on **EphA2**)
RE.CNT 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andres, A; Int J Cancer 1995, V63, P288 HCAPLUS
(2) Bae, S; Breast Cancer Res Treat 1993, V24, P241 MEDLINE
(3) Behrens, J; Cancer Treat Res 1994, V71, P251 MEDLINE
(4) Behrens, J; J Cell Biol 1993, V120, P757 HCAPLUS
(5) Burridge, K; Annu Rev Cell Biol 1988, V4, P487 HCAPLUS
(6) Burridge, K; Annu Rev Cell Dev Biol 1996, V12, P463 HCAPLUS
(7) Cance, W; Breast Cancer Res Treat 1995, V35, P105 HCAPLUS
(8) Chen, H; J Cell Sci 1997, V110, P345 HCAPLUS
(9) Easty, D; Cancer Res 1995, V55, P2528 HCAPLUS
(10) Fagotto, F; Dev Biol 1996, V180, P445 HCAPLUS
(11) Foulkes, J; J Biol Chem 1985, V260, P8070 HCAPLUS
(12) Frixen, U; J Cell Biol 1991, V113, P173 HCAPLUS
(13) Gale, N; Cell Tissue Res 1997, V290, P227 HCAPLUS
(14) Gale, N; Neuron 1996, V17, P9 HCAPLUS
(15) Geiger, B; Annu Rev Cell Biol 1992, V8, P307 HCAPLUS
(16) George, S; Cell 1998, V92, P633 HCAPLUS
(17) Hamaguchi, M; EMBO J 1993, V12, P307 HCAPLUS
(18) Henkemeyer, M; Cell 1996, V86, P35 HCAPLUS
(19) Holland, S; EMBO J 1997, V16, P3877 HCAPLUS
(20) Hutchcroft, J; J Biol Chem 1991, V266, P14846 HCAPLUS
(21) Kandikonda, S; Cell Adhes Commun 1996, V4, P13 HCAPLUS
(22) Kinch, M; Biochem Soc Trans 1995, V23, P446 HCAPLUS
(23) Kinch, M; Cell Adhes Commun 1997, V4, P425 HCAPLUS
(24) Kinch, M; Hybridoma 1998, V17, P227 HCAPLUS
(25) Kinch, M; J Cell Biol 1995, V130, P461 HCAPLUS
(26) Kopreski, M; Anticancer Res 1996, V16, P3037 MEDLINE
(27) Lindberg, R; Mol Cell Biol 1990, V10, P6316 HCAPLUS
(28) Lower, E; Breast Cancer Res Treat 1993, V26, P217 MEDLINE
(29) Magal, E; J Neurosci Res 1996, V43, P735 HCAPLUS
(30) Maher, P; Proc Natl Acad Sci USA 1985, V82, P6576 HCAPLUS
(31) Marrs, J; J Cell Biol 1995, V129, P507 HCAPLUS

(32) Maru, Y; Oncogene 1990, V5, P445 HCAPLUS
(33) Matsuyoshi, N; J Cell Biol 1992, V118, P703 HCAPLUS
(34) Murphy, L; Cancer Res 1988, V48, P4555 HCAPLUS
(35) Nose, A; Cell 1988, V54, P993 HCAPLUS
(36) Owens, L; Cancer Res 1995, V55, P2752 HCAPLUS
(37) Ozawa, M; Mech Dev 1990, V33, P49 HCAPLUS
(38) Paine, T; Int J Cancer 1992, V50, P463 MEDLINE
(39) Pandey, A; J Biol Chem 1994, V269, P30154 HCAPLUS
(40) Pandey, A; J Biol Chem 1995, V270, P19201 HCAPLUS
(41) Pandey, A; Science (Washington DC) 1995, V268, P567 HCAPLUS
(42) Parsons, J; Curr Opin Cell Biol 1996, V8, P146 HCAPLUS
(43) Pasquale, E; Curr Opin Cell Biol 1997, V9, P608 HCAPLUS
(44) Pauley, R; Eur J Cancer Prev 1993, V2(Suppl 3), P67
(45) Press, M; Prog Clin Biol Res 1990, V354A, P209 MEDLINE
(46) Price, J; Breast Cancer Res Treat 1996, V39, P93 MEDLINE
(47) Roche, S; Curr Biol 1998, V8, P975 HCAPLUS
(48) Rosenberg, I; Am J Physiol 1997, V273, PG824 HCAPLUS
(49) Southern, P; J Mol Appl Genet 1982, V1, P327 HCAPLUS
(50) Stein, E; Genes Dev 1998, V12, P667 HCAPLUS
(51) Stein, E; J Biol Chem 1998, V273, P1303 HCAPLUS
(52) Takeichi, M; Curr Opin Cell Biol 1993, V5, P806 HCAPLUS
(53) van der Geer, P; Annu Rev Cell Biol 1994, V10, P251 HCAPLUS
(54) Vestweber, D; Cell Differ 1984, V15, P269 HCAPLUS
(55) Vestweber, D; EMBO J 1985, V4, P3393 HCAPLUS
(56) Vestweber, D; Exp Cell Res 1984, V152, P169 HCAPLUS
(57) Volberg, T; EMBO J 1992, V11, P1733 HCAPLUS
(58) Zhang, R; Invasion Metastasis 1991, V11, P204 MEDLINE
(59) Zisch, A; Cell Tissue Res 1997, V290, P217 HCAPLUS
(60) Zisch, A; Oncogene 1998, V16, P2657 HCAPLUS

L40 ANSWER 53 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **1998:685118** HCAPLUS
DN **129:310905**
ED Entered STN: 29 Oct 1998
TI Study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**
IN Clary, Douglas
PA Sugen, Inc., USA
SO PCT Int. Appl., 81 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-566
ICS A61K031-00
CC 1-12 (Pharmacology)
Section cross-reference(s): 13, 14, 63
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9845708	A1	19981015	WO 1998-US6842	19980407 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9868876	A1	19981030	AU 1998-68876	19980407 <--
	US 2002068361	A1	20020606	US 1998-57150	19980407 <--

US 6235769 B1 20010522 US 1998-109883 19980702 <--
PRAI US 1997-43207P P 19970408 <--
US 1997-51715P P 19970703 <--
WO 1998-US6842 W 19980407 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 9845708	ICM	G01N033-566	
	ICS	A61K031-00	
WO 9845708	ECLA	G01N033/566	<--
US 2002068361	NCL	435/455.000; 435/007.100	<--
US 6235769	NCL	514/419.000; 514/418.000	
	ECLA	A61K031/40	<--

AB The invention relates to methods of evaluating the specific function of a **receptor protein tyrosine kinase** in cells by activating the **receptor** in a ligand-independent fashion. In addition, the invention includes methods of identifying compds. that modulate **receptor protein tyrosine kinase** function. The invention also relates to a method of **preventing** or treating an abnormal condition caused by an aberration in the function of the C-RET **receptor**, and specifically to the treatment and **prevention** of neurodegenerative disorders by administering a compound that modulates the function of the C-RET **receptor.**

ST **receptor protein tyrosine kinase** function evaluation; drug screening **receptor protein tyrosine kinase**; ret **receptor** disease therapeutic; neurodegenerative disorder therapeutic ret **receptor** modulator

IT Chicken (Gallus domesticus)
(RPTK extracellular region from; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Chimeric gene
RL: BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(RPTK intra- and extracellular region-encoding; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Nervous system
(amyotrophic lateral sclerosis; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Biological transport
(blood-brain barrier; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Nervous system
(degeneration; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Cytoprotective agents
(neuroprotectants; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Anti-Alzheimer's agents
Antiparkinsonian agents
Apoptosis

Blood-brain barrier
Drug delivery systems
Drug screening
Nervous system agents
Phenotypes
(study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Nerve
(sympathetic; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT Antibodies
RL: BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(to RPTK extracellular region; study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT 204003-90-7 204003-91-8 204003-96-3 204003-97-4 204004-10-4 204004-11-5
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(study and treatment of diseases related to specific cellular functions of **receptor protein tyrosine kinases**, and screening method)

IT 79079-06-4, EGF **receptor tyrosine kinase** 101463-26-7 127407-08-3, **Receptor protein tyrosine kinase** 141588-26-3, Ltk **tyrosine kinase** 142243-02-5, Erk **receptor tyrosine kinase** 144114-11-4, Ros **receptor tyrosine kinase** 144247-17-6, Irr **receptor tyrosine kinase** 146279-92-7, Ret **receptor tyrosine kinase** 146592-50-9, Hek **kinase** 147171-40-2, Tor **receptor tyrosine kinase** 148047-27-2, Sek **kinase** 149146-92-9, Trk **kinase** 149433-90-9, Elk **receptor tyrosine kinase** **149433-91-0**, **Eck kinase** 149433-92-1, **Eph receptor tyrosine kinase** 150523-24-3, Cek9 **tyrosine kinase** 153190-60-4, Tyro-10 **kinase** 153190-63-7, Axl **tyrosine kinase receptor** 154907-68-3, Tyro-3 **kinase** 156859-16-4, Ryk **receptor tyrosine kinase** 157857-23-3, Myk2 **receptor tyrosine kinase** 160995-45-9, Ehk1 **receptor tyrosine kinase** 162032-63-5, Ddr **receptor tyrosine kinase** 166433-56-3, Alk **receptor tyrosine kinase** 169277-51-4, Mer **receptor tyrosine kinase** 171715-11-0, Mdk1 **receptor tyrosine kinase** 177529-09-8, MCK-10 **receptor tyrosine kinase** 180615-67-2, Ehk2 **receptor tyrosine kinase** 185766-52-3, Cck-4 **protein tyrosine kinase** 204934-34-9, Hek2 **receptor tyrosine kinase** 214692-97-4, Ror2 **receptor tyrosine kinase** 214692-98-5, Ror1 **receptor tyrosine kinase** 216974-70-8, Myk1 **receptor tyrosine kinase** 248259-60-1, Eek **receptor tyrosine kinase**
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(study and treatment of diseases related to specific cellular functions

of **receptor protein tyrosine kinases**, and screening method)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Braunger, J; ONCOGENE 1997, V14(22), P2619 HCAPLUS
(2) McCloskey, P; CELL GROWTH AND DIFFERENTIATION 1994, V5(10) HCAPLUS
(3) Obermeier, A; THE EMBO JOURNAL 1993, V12(3), P933 HCAPLUS
(4) Pharmacia Spa; WO 9622976 A 1996 HCAPLUS
(5) Sachs, M; THE JOURNAL OF CELL BIOLOGY 1996, V133(5), P1095 HCAPLUS
(6) Santoro, M; MOLECULAR AND CELLULAR BIOLOGY 1994, V14(1), P663 HCAPLUS
(7) Spaargaren, M; JOURNAL OF BIOLOGICAL CHEMISTRY 1991, V266(3), P1733 HCAPLUS
(8) Trupp, M; NATURE 1996, V381, P785 HCAPLUS

L40 ANSWER 54 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN

AN **1996:185898** HCAPLUS

DN **124:252691**

ED Entered STN: 30 Mar 1996

TI Germ-line inactivation of the murine **Eck receptor tyrosine kinase** by gene trap retroviral insertion

AU Chen, Jin; Nachabah, Abudi; Scherer, Christina; Ganju, Pam; Reith, Alastair; Bronson, Rod; Ruley, H. Earl

CS Dep. Microbiology, Immunology, Vanderbilt Univ. Sch. Med., Nashville, TN, 37232, USA

SO Oncogene (**1996**), 12(5), 979-88
CODEN: ONCNES; ISSN: 0950-9232

PB Stockton

DT Journal

LA English

CC 3-6 (Biochemical Genetics)
Section cross-reference(s): 13

AB The present study characterized a mutation in the **Eck receptor tyrosine kinase** gene induced by the U3βgeo gene trap retrovirus. The mutation (ecki) was identified during an in vitro screen for proviruses that disrupt developmentally regulated genes in cultured ES cells. The germ-line ecki fusion gene was expressed in blastocyst and later restricted to the primitive streak, node and to regions of the hindbrain in 6.5-10.5 day embryos. This is identical to the pattern of **Eck** gene expression as determined by either in situ hybridization or immunostaining, suggesting that expression of the **Eck** promoter was not affected by provirus integration. The provirus inserted approx. 8 kb upstream of the 5' end of the published cDNA sequence, and 1.8 kb downstream of an alternatively spliced 5' exon. The ecki allele is essentially a null mutation since mutant mice are severely deficient for **Eck protein** as determined by Western blot anal. and in vitro **kinase** assays. Nevertheless, mice homozygous for the mutation did not exhibit any discernable phenotype. These results suggest that other members of the **Eph** family of **receptor tyrosine kinases** can functionally compensate for loss of **Eck.**

ST gene **eck receptor tyrosine kinase** mutation; retrovirus gene trap **receptor Eck** mutation; sequence exon gene **eck** mouse

IT Embryo
(germ-line inactivation of murine **Eck receptor tyrosine kinase** by gene trap retroviral insertion and its effects on development)

IT Deoxyribonucleic acid sequences
(of gene **eck** exon 5.2 from mouse)

IT Mouse
(Mus musculus, germ-line inactivation of murine **Eck**

receptor tyrosine kinase by gene trap
retroviral insertion)
IT Gene, animal
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(**eck**, germ-line inactivation of murine **Eck**
receptor tyrosine kinase by gene trap
retroviral insertion)
IT Animal growth regulator **receptors**
Receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(glycoprotein B61, gene **eck**, germ-line inactivation of murine
Eck receptor tyrosine kinase by
gene trap retroviral insertion)
IT Mutation
(insertion, germ-line inactivation of murine **Eck**
receptor tyrosine kinase by gene trap
retroviral insertion)
IT Virus, animal
(retro-, U3βgeo gene trap; germ-line inactivation of murine
Eck receptor tyrosine kinase by
gene trap retroviral insertion)
IT **149433-91-0**, **Kinase** (phosphorylating), gene **eck**
protein
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(germ-line inactivation of murine **Eck receptor**
tyrosine kinase by gene trap retroviral insertion)
IT 166931-97-1
RL: PRP (Properties)
(nucleotide sequence; germ-line inactivation of murine **Eck**
receptor tyrosine kinase by gene trap
retroviral insertion)

L40 ANSWER 55 OF 55 HCAPLUS COPYRIGHT 2005 ACS on STN
AN **1991:241599** HCAPLUS
DN **114:241599**
ED Entered STN: 28 Jun 1991
TI cDNA cloning and characterization of **eck**, an **epithelial**
cell receptor protein-tyrosine
kinase in the **eph**/elk family of **protein**
kinases
AU Lindberg, Richard A.; Hunter, Tony
CS Mol. Biol. Virol. Lab., Salk Inst. Biol. Stud., San Diego, CA, 92186-5800, USA
SO Molecular and Cellular Biology (**1990**), 10(12), 6316-24
CODEN: MCEBD4; ISSN: 0270-7306
DT Journal
LA English
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 7
AB A human epithelial (HeLa) cDNA library was screened with degenerate oligonucleotides designed to hybridize to highly conserved regions of **protein-tyrosine kinases.** One cDNA from this screen was shown to contain a putative **protein-tyrosine**
kinase catalytic domain and subsequently used to isolate another cDNA from a human keratinocyte library that encompasses the entire coding region of a 976-amino-acid polypeptide. The predicted **protein**

has an external domain of 534 amino acids with a presumptive N-terminal signal peptide, a transmembrane domain, and a cytoplasmic domain of 418 amino acids that includes a canonical **protein-tyrosine kinase** catalytic domain. Mol. phylogeny indicates that this **protein kinase** is closely related to **eph** and elk and that this **receptor** family is more closely related to the non-**receptor protein-tyrosine kinase** families than to other **receptor protein-tyrosine kinases.** Antibodies raised against a TrpE fusion **protein** immunopptd. a 130-kDa **protein** that became phosphorylated on **tyrosine** in immune complex **kinase** assays, indicating that this **protein** is a bona fide **protein-tyrosine kinase.** Anal. of RNA from 13 adult rat organs showed that the **eck** gene is expressed most highly in tissues that contain a high proportion of epithelial cells, e.g., skin, intestine, lung, and ovary. Several cell lines of epithelial origin were found to express the **eck protein kinase** at the **protein** and RNA levels. Immunohistochem. anal. of several rat organs also showed staining in epithelial cells. These observations lead to the naming of this **protein kinase eck**, for epithelial cell **kinase.**

ST epithelial all **protein kinase eck** sequence;
cDNA **eck protein kinase** cloning sequence;
human **eck protein kinase** cDNA sequence

IT HeLa cell
(epithelial cell gene **eck protein tyrosine kinase** of, cloning and sequencing of cDNA for)

IT Epithelium
(gene **eck protein tyrosine kinase** of, of human, cloning and sequencing of cDNA for)

IT Rat
(gene **eck protein tyrosine kinase** of, characterization of)

IT Intestine, composition
Lung, composition
Ovary, composition
(gene **eck protein tyrosine kinase** of, of human, identification of)

IT Molecular cloning
(of gene **eck protein tyrosine kinase** gene, of human epithelial cells)

IT **Protein** sequences
(of gene **eck protein tyrosine kinase** and precursor, of human, complete)

IT Phosphorylation, biological
(auto-, of gene **eck protein tyrosine kinase**, of human)

IT Skin, composition
(epithelium, gene **eck protein tyrosine kinase**, of human, identification of)

IT Deoxyribonucleic acid sequences
(**protein (tyrosine) kinase**-specifying, gene **eck**, of human, complete)

IT Gene and Genetic element, animal
RL: BIOL (Biological study)
(**eck**, for **protein tyrosine kinase** of human epithelial cells, cloning and sequencing of)

IT 134090-19-0 134090-20-3
RL: PRP (Properties)
(amino acid sequence of)

IT 80449-02-1
RL: PRP (Properties)
(gene **eck**, cDNA for, of human epithelial cell, cloning and sequence of)
IT 134094-00-1
RL: PRP (Properties); BIOL (Biological study)
(nucleotide sequence of)
IT 134093-99-5, Deoxyribonucleic acid (human clone OB18 gene **eck** **protein** (**tyrosine**) **kinase** messenger RNA-complementary)
RL: PRP (Properties)
(nucleotide sequences)

=> => d l26 bib abs retable tot

L26 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:547699 HCAPLUS
TI Targeted drug delivery using **epha2** or eph4 binding moieties
IN **Kinch, Michael S.**
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 231 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005056766	A2	20050623	WO 2004-US41020	20041206
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2003-527396P	P	20031204		
	US 2004-4794	A	20041203		
	US 2004-4795	A	20041203		

AB The present invention relates to methods and compositions designed for the treatment, management, or prevention of a hyperproliferative cell disease, particularly cancer. The methods of the invention comprise the administration of an effective amount of a composition that targets cells expressing an Eph family receptor tyrosine kinase, such as **EphA2** or EphA4, for the treatment, management, or prevention of hyperproliferative diseases, particularly cancer. In one embodiment, the method of the invention comprises administering to a subject a composition comprising an **EphA2** or EphA4 targeting moiety attached to a delivery vehicle, and one or more therapeutic or prophylactic agents that treat or prevent a hyperproliferative disease, where the therapeutic or prophylactic agents that treat or prevent a hyperproliferative disease, where the therapeutic or prophylactic agents are operatively associated with the delivery vehicle. In another embodiment, the method of the invention comprises administering to a subject a composition comprising a nucleic acid comprising a nucleotide sequence encoding an **EphA2** or EohA4 targeting moiety and a therapeutic or prophylactic agent that

treats or prevents a hyperproliferative disease. In yet another embodiment, the method of the invention comprises administering to a subject a composition comprising an **EphA2** or EphA4 targeting moiety and a nucleic acid comprising a nucleotide sequence encoding an agent that treats or prevents a hyperproliferative disease, where the nucleic acid is operatively associated with the delivery vehicle. Pharmaceutical compositions are also provided by the present invention.

L26 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:540463 HCAPLUS
TI **EphA2**-, ephA4-, and low molecular weight protein tyrosine phosphatase-based methods for treatment of hyperproliferative cell disorders
IN **Kinch, Michael S.**
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 240 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005055948	A2	20050623	WO 2004-US41023	20041206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI US 2003-527154P	P	20031204		
US 2004-4794	A	20041203		
US 2004-4795	A	20041203		

AB The invention discloses methods and compns. designed for treatment, management, or prevention of a hyperproliferative cell disease, in particular cancer. The methods comprise the administration of an effective amount of a composition that targets cells expressing low mol. weight protein tyrosine phosphatase (LMW-PTP) in particular using moieties that bind an Eph family receptor tyrosine kinase, such as **EphA2** or EphA4, and inhibits or reduces LMW-PTP expression and/or activity. In one embodiment, the method comprises administering to a subject a composition comprising an **EphA2** or EphA4 targeting moiety attached to a delivery vehicle, and one or more agents that inhibit LMW-PTP expression and/or activity operatively associated with the delivery vehicle. In another embodiment, the method comprises administering to a subject a composition comprising a nucleic acid comprising a nucleotide sequence encoding an **EphA2** or EphA4 targeting moiety and an agent that inhibits or reduces LMW-PTP expression and/or activity. In yet another embodiment, the method comprises administering to a subject a composition comprising an **EphA2** or EphA4 targeting moiety and a nucleic acid comprising a nucleotide sequence encoding an agent that inhibits or reduces LMW-PTP expression and/or activity, where the nucleic acid is operatively associated with the delivery vehicle. Pharmaceutical compns. are also provided by the invention.

L26 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:493472 HCAPLUS
TI **EphA2** agonistic monoclonal antibodies for diagnosis, prognosis and therapy of cancer and metastasis
IN **Kinch, Michael S.**; Carles-Kinch, Kelly; Stewart, Jane C.
PA **Medimmune, Inc., USA**; Purdue Research Foundation
SO PCT Int. Appl., 134 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005051307	A2	20050609	WO 2004-US39112	20041119

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2003-524177P P 20031120
AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of cancer, particularly, metastatic cancer. The methods of the invention comprise the administration of an effective amount of one or more antibodies that bind to and agonize **EphA2**, thereby increasing **EphA2** phosphorylation and decreasing **EphA2** levels in cells which **EphA2** has been agonized. The invention also encompasses antibodies that preferentially bind an **EphA2** epitope exposed on cancer cells but not non-cancer cells. The invention also provides pharmaceutical compns. comprising one or more **EphA2** antibodies of the invention either alone or in combination with one or more other agents useful for cancer therapy. In addition, diagnostic methods and methods for screening for therapeutically useful anti-**EphA2** antibodies are also provided.

L26 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:371065 HCAPLUS
DN 142:409704
TI Recombinant Listeria encoding **EphA2** antigen peptides as vaccines against cancer and proliferative diseases
IN **Kinch, Michael S.**; **Kiener, Peter A.**; Bruckheimer, Elisabeth; Dubensky, Thomas W., Jr.; Cook, David N.
PA **Medimmune, Inc., USA**; Cerus Corporation
SO PCT Int. Appl., 219 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005037233	A2	20050428	WO 2004-US34694	20041015

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2003-511719P P 20031015
US 2003-511919P P 20031015
US 2003-532666P P 20031224
US 2004-556631P P 20040326
US 2004-615470P P 20041001
US 2004-617544P P 20041007

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of cancer, particularly metastatic cancer and cancers of T cell origin, and hyperproliferative diseases involving **EphA2**-expressing cells. The methods of the invention entail the use of a Listeria-based **EphA2** vaccine. The invention also provides pharmaceutical compns. comprising one or more Listeria-based vaccines of the invention either alone in combination with one or more other agents useful for cancer therapy. In certain aspects of the invention, the method entail eliciting both CD4+ and CD8+ T-cell responses against **EphA2** and/or **EphA2**-expressing cells.

L26 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:343316 HCAPLUS
TI Antibody humanization by framework shuffling
AU Dall'Acqua, William F.; Damschroder, Melissa M.; Zhang, Jingli; Woods, Robert M.; Widjaja, Lusiana; Yu, Julie; Wu, Herren
CS Department of Antibody Discovery and Protein Engineering, **MedImmune**, Inc., Gaithersburg, MD, 20878, USA
SO Methods (San Diego, CA, United States) (2005), 36(1), 43-60
CODEN: MTHDE9; ISSN: 1046-2023
PB Elsevier
DT Journal
LA English
AB We report here the humanization of a mouse monoclonal antibody (mAb B233) using a new technique which we call framework shuffling. MAb B233 was raised against the human receptor tyrosine kinase **EphA2** which is selectively up-regulated in many cancer cell lines and as such constitutes an attractive target for cancer therapy. The six CDRs of B233 were fused in-frame to pools of corresponding individual human frameworks. These human frameworks encompassed all known heavy and light (κ) chain human germline genes. The resulting Fab combinatorial libraries were then screened for binding to the antigen. A two-step selection process, in which the light and heavy chains of the parental mAb were successively humanized, resulted in the identification of several humanized variants that retained binding to **EphA2**. More precisely, after conversion to human IgG1, the dissociation consts. of three select fully humanized variants ranged from 3 to 48 nM. This brings the best framework-shuffled, humanized binder within 5-fold of the avidity of parental mAb B233. Importantly, these humanized IgGs also possessed biochem. activities similar to those of parental mAb B233 as judged by induction of **EphA2** phosphorylation. Thus, without requiring any rational design or structural information, this new humanization approach allows to rapidly identify various human framework combinations able to support the structural feature(s) of the CDRs which are essential for binding and functional activity.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File

Amit, A	1986	233	747	Science	HCAPLUS
Banfield, M	1997	29	161	Proteins	HCAPLUS
Benhar, I	1994	91	12051	Proc Natl Acad Sci U	HCAPLUS
Boshart, M	1985	41	521	Cell	HCAPLUS
Boulianne, G	1984	312	643	Nature	HCAPLUS
Brensing-Kuppers, J	1997	191	173	Gene	HCAPLUS
Carles-Krunvainch, K	2002	62	2840	Cancer Res	
Carter, P	1992	89	4285	Proc Natl Acad Sci U	HCAPLUS
Coffman, K	2003	63	7907	Cancer Res	HCAPLUS
Crothers, D	1972	9	341	Immunochemistry	HCAPLUS
Eigenbrot, C	1994	18	49	Proteins	HCAPLUS
Foote, J	1992	224	487	J Mol Biol	HCAPLUS
Harris, W	1995		99	Antibody Therapeutic	
Hasholzner, U	1997	17	3055	Anticancer Res	MEDLINE
Hieter, P	1982	257	1516	J Biol Chem	HCAPLUS
Ho, S	1989	77	51	Gene	HCAPLUS
Holmes, M	1997	158	2192	J Immunol	HCAPLUS
Johnson, S	1997	176	1215	J Infect Dis	HCAPLUS
Johnsson, B	1991	198	268	Anal Biochem	HCAPLUS
Jones, P	1986	321	522	Nature	HCAPLUS
Kabat, E	1991			Sequences of Protein	
Kettleborough, C	1991	4	773	Protein Eng	HCAPLUS
Klee, G	2000	124	921	Arch Pathol Lab Med	HCAPLUS
Kohler, G	1975	256	495	Nature	MEDLINE
Kunkel, T	1987	154	367	Methods Enzymol	HCAPLUS
Kuus-Reichel, K	1994	1	365	Clin Diagn Lab Immun	MEDLINE
Matsuda, F	1998	188	1973	J Exp Med	
Muller, K	1998	261	149	Anal Biochem	HCAPLUS
Padlan, E	1991	28	489	Mol Immunol	HCAPLUS
Pichla, S	1997	119	6	J Struct Biol	HCAPLUS
Presta, L	1993	151	2623	J Immunol	HCAPLUS
Queen, C	1989	86	10029	Proc Natl Acad Sci U	HCAPLUS
Ravetch, J	1981	27	583	Cell	MEDLINE
Rosok, M	1996	271	22611	J Biol Chem	HCAPLUS
Routledge, E	1991	21	2717	Eur J Immunol	HCAPLUS
Sanger, F	1977	74	5463	Proc Natl Acad Sci U	HCAPLUS
Schable, K	1993	374	1001	Biol Chem Hoppe Seyl	MEDLINE
Shearman, C	1991	147	4366	J Immunol	MEDLINE
Tan, P	2002	169	1119	J Immunol	HCAPLUS
Tangri, S	2002	9	2191	Curr Med Chem	HCAPLUS
Tramontano, A	1990	215	175	J Mol Biol	HCAPLUS
Verhoeyen, M	1988	239	1534	Science	HCAPLUS
Wu, H	2003	207	197	Methods Mol Biol	HCAPLUS
Wu, H	2003	207	213	Methods Mol Biol	HCAPLUS

L26 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:182287 HCAPLUS
DN 142:278743
TI Humanization of antibodies by combinatorial library technology for immunodiagnosis and immunotherapy or gene therapy
IN Wu, Herren; Dall-Acqua, William; Damschroder, Melissa
PA **Medimmune, Inc., USA**
SO U.S. Pat. Appl. Publ., 130 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI US 2005048617 A1 20050303 US 2004-920899 20040818
WO 2005042743 A2 20050512 WO 2004-US26953 20040818
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRAI US 2003-496367P P 20030818
AB The present invention relates to methods of reengineering or reshaping antibodies to reduce the immunogenicity of the antibodies, while maintaining the immunospecificity of the antibodies for an antigen. In particular, the present invention provides methods of producing antibodies immunospecific for an antigen by synthesizing a combinatorial library comprising complementarity determining regions (CDRs) from a donor antibody fused in frame to framework regions from a sub-bank of framework regions. The present invention also provides antibodies produced by the methods of the invention. Thus, preparation of humanize anti-human **EphA2** monoclonal antibodies B233 was exemplified.

L26 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:161005 HCAPLUS
DN 142:254576
TI Inhibitors of **EphA2**, PCDGF, and HAAH for combination therapy and diagnosis of prevention of hyperproliferative disorder, cancer and metastasis
IN **Kinch, Michael S.**; Carles-Kinch, Kelly; **Kiener, Peter**; **Langermann, Solomon**; Mccarthy, Michael P.; Tice, David; Woessner, Richard
PA **Medimmune, Inc., USA**
SO PCT Int. Appl., 177 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005016381	A2	20050224	WO 2004-US23097	20040716

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRAI US 2003-489036P P 20030721
AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of a hyperproliferative disorder, particularly cancer, more particularly metastatic cancer. The methods of the invention comprise the administration of an effective amount of one or more agents that decrease/inhibit **EphA2** receptor tyrosine kinase

(**EphA2**) expression or activity in combination with one or more agents that decrease/inhibit PC cell derived growth factor (PCDGF) or human aspartyl (asparaginyl) β-hydroxylase (HAAH) expression or activity. In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more **EphA2**, PCDGF, and/or HAAH agents of the invention that inhibit cancer cell colony formation in soft agar or tubular network formation in three-dimensional basement membrane or extracellular matrix preparation The invention also provides pharmaceutical compns. comprising one or more **EphA2** agents of the invention in combination with one or more PCDGF agents of the invention and/or one or more HAAH agents of the invention. In some embodiments, the agents of the invention can be administered with other cancer therapeutic agents that are not **EphA2**-, PCDGF-, or HAAH-based. Diagnostic methods and methods for screening for therapeutically useful agents of the invention are also provided.

L26 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:160740 HCAPLUS
DN 142:259976
TI Combinatorial preparation of humanized anti-interleukin 9 and anti-human **EphA2** monoclonal antibodies, fragments and conjugates for screening, diagnosis and therapy
IN Wu, Herren; Dall-Acqua, William; Damschroder, Melissa
PA **Medimmune, Inc., USA**
SO U.S. Pat. Appl. Publ., 179 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005042664	A1	20050224	US 2004-923068	20040820
WO 2005035575	A2	20050421	WO 2004-US27188	20040820

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2003-497213P	P	20030822	
US 2003-510741P	P	20031013	

AB The present invention provides methods of re-engineering or re-shaping an antibody from a first species, wherein the re-engineered or re-shaped antibody does not elicit undesired immune response in a second species, and the re-engineered or re-shaped antibody retains substantially the same antigen binding-ability of the antibody from the first species. In accordance with the present invention, a combinatorial library comprising the CDRs of the antibody from the first species fused in frame with framework regions derived from a second species can be constructed and screened for the desired modified antibody heavy and light chains. In particular, the present invention provides methods utilizing low homol. acceptor antibody frameworks for efficiently humanizing an antibody or a fragment thereof. The present invention also provides antibodies produced by the methods of the invention.

L26 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:120967 HCAPLUS
DN 142:217364
TI Human **EphA2** protein T cell epitope agonists for ELISPOT assay and as vaccines against tumor overexpressing **EphA2**
IN Storkus, Walter J.; **Kinch, Michael S.**
PA University of Pittsburgh-of the Commonwealth System of Higher Education, USA; **Medimmune, Inc.**
SO PCT Int. Appl., 115 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005012350	A2	20050210	WO 2004-US23931	20040722
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005048550	A1	20050303	US 2004-897711	20040722
PRAI US 2003-491046P	P	20030730		

AB **EphA2** T-cell epitope agonists are provided herein. The agonists include peptides corresponding to specific fragments of human **EphA2** protein containing one or more T-cell epitopes, and conservative derivs. thereof. The **EphA2** T-cell epitope agonists are useful in an assay, such as an ELISPOT assay, that may be used to determine and/or quantify a patient's immune responsiveness to **EphA2**. The agonists also are useful in methods of modulating a patient's immune reactivity to **EphA2**, which has substantial utility as a treatment for cancers that overexpress **EphA2**, such as renal cell carcinoma. The **EphA2** agonists also can be used to vaccinate a patient against **EphA2**, by in vivo or ex vivo methods.

L26 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:103328 HCAPLUS
TI Expression of **EphA2** is prognostic of disease-free interval and overall survival in surgically treated patients with renal cell carcinoma
AU Herrem, Christopher J.; Tatsumi, Tomohide; Olson, Kathleen S.; Shirai, Keisuke; Finke, James H.; Bukowski, Ronald M.; Zhou, Ming; Richmond, Amy L.; Derweesh, Ithaar; **Kinch, Michael S.**; Storkus, Walter J.
CS Department of Immunology, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA
SO Clinical Cancer Research (2005), 11(1), 226-231
CODEN: CCREF4; ISSN: 1078-0432
PB American Association for Cancer Research
DT Journal
LA English
AB Whereas normally expressed at sites of cell-to-cell contact in adult epithelial tissues, recent studies have shown that the receptor tyrosine kinase **EphA2** is overexpressed in numerous epithelial-type carcinomas, with the greatest level of **EphA2** expression observed in metastatic lesions. In the current study, we have assessed **EphA2**

expression in archived renal cell carcinoma (RCC) tissues as it relates to patient disease course. Using specific anti-**EphA2** monoclonal antibody 208 and immunohistochem. we evaluated **EphA2** protein expression levels in RCC specimens surgically resected from 34 patients (including 30 conventional clear-cell RCC, 3 papillary, and 1 chromophobic RCC cases) resulting in clin. cures. Regardless of histopathol. subtype, RCC lesions expressing higher levels of **EphA2** tended to be of a higher grade ($P < 0.05$) and larger ($P = 0.093$), more-highly-vascularized tumors ($P = 0.005$). Perhaps most notable, the degree of **EphA2** overexpression (vs. normal matched autologous kidney tissue) seemed predictive of short-term (<1 yr) vs. longer-term (≥1 yr) disease-free interval ($P < 0.001$) and of overall survival ($P < 0.001$) among the RCC patients evaluated. These data suggest that **EphA2** expression level may serve as a useful prognostic tool in the clin. management of patients who have been successfully treated with surgery, but who are at greater risk for accelerated disease recurrence and who have a poorer prognosis.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Brantley, D	2002	21	7011	Oncogene	HCAPLUS
DeRisi, J	1996	14	457	Nat Genet	HCAPLUS
Duxbury, M	2004	23	1448	Oncogene	HCAPLUS
D'Amico, T	2001	72	1144	Ann Thorac Surg	MEDLINE
Easty, D	1995	55	2528	Cancer Res	HCAPLUS
Easty, D	1999	84	494	Int J Cancer	HCAPLUS
Eble, J	2004			WHO classification o	
Hendrix, M	2003	22	3070	Oncogene	HCAPLUS
Kataoka, H	2004	95	136	Cancer Sci	HCAPLUS
Kikawa, K	2002	277	39274	J Biol Chem	HCAPLUS
Kinch, M	2003	9	613	Clin Cancer Res	HCAPLUS
Kinch, M	2003	20	59	Clin Exp Metastasis	HCAPLUS
Lu, M	2003	63	3425	Cancer Res	HCAPLUS
Mellitzer, G	2000	10	400	Curr Opin Neurobiol	HCAPLUS
Miyazaki, T	2003	103	657	Int J Cancer	HCAPLUS
Ogawa, K	2000	19	6043	Oncogene	HCAPLUS
Stein, E	1998	12	667	Genes Dev	HCAPLUS
Straume, O	2002	160	1009	Am J Pathol	HCAPLUS
Tatsumi, T	2003	63	4481	Cancer Res	HCAPLUS
Thaker, P	2004	10	5145	Clin Cancer Res	HCAPLUS
Walker-Daniels, J	2003	162	1037	Am J Pathol	HCAPLUS
Walker-Daniels, J	1999	41	275	Prostate	HCAPLUS
Zantek, N	1999	10	629	Cell Growth Differ	HCAPLUS
Zelinski, D	2001	61	2301	Cancer Res	HCAPLUS
Zelinski, D	2002	85	714	J Cell Biochem	HCAPLUS
Zeng, G	2003	163	2271	Am J Pathol	HCAPLUS

L26 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:59831 HCAPLUS
DN 142:154248
TI Anti-EphA4 antibodies and agonists for diagnosis, prognosis and treatment of cancer and metastasis
IN **Kinch, Michael S.**; Carles-Kinch, Kelly
PA USA
SO U.S. Pat. Appl. Publ., 59 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005013819	A1	20050120	US 2004-863729	20040607
	WO 2005048917	A2	20050602	WO 2004-US18279	20040607
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2003-476909P	P	20030606		
	US 2003-503356P	P	20030916		

AB The present invention relates to methods and compns. designed for the treatment, management, or prevention of cancer, particularly, metastatic cancer. In one embodiment, the methods of the invention comprise the administration of an effective amount of one or more antibodies that bind to EphA4 and agonize EphA4. In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more antibodies that bind to EphA4 and inhibit cancer cell colony formation in soft agar or tubular network formation in three-dimensional basement membrane or extracellular matrix preparation In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more antibodies that preferentially binds to an EphA4 epitope that is exposed on cancer cells but not non-cancer cells. In another embodiment, the methods of the invention comprise the administration of an effective amount of one or more antibodies that bind to EphA4 with a very low Koff to reduce EphA4 expression and, thereby, inhibit tumor cell growth and/or metastasis. The invention also provides pharmaceutical compns. comprising one or more EphA4 antibodies of the invention either alone or in combination with one or more other agents useful for cancer therapy.

L26 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:930662 HCAPLUS
DN 142:86069
TI Decreased tumorigenic potential of **EphA2**-overexpressing breast cancer cells following treatment with adenoviral vectors that express EphrinA1
AU Noblitt, Loren W.; Bangari, Dinesh S.; Shukla, Shruti; Knapp, Deborah W.; Mohammed, Sulma; **Kinch, Michael S.**; Mittal, Suresh K.
CS Laboratory of Gene Therapy, Purdue University, West Lafayette, IN, 47907, USA
SO Cancer Gene Therapy (2004), 11(11), 757-766
CODEN: CGTHEG; ISSN: 0929-1903
PB Nature Publishing Group
DT Journal
LA English
AB The **EphA2** receptor tyrosine kinase is frequently overexpressed in invasive breast cancer cells. Moreover, these malignant cells have unstable cell-cell contacts, which preclude **EphA2** from interacting with its ligand, EphrinA1, which is anchored to the membrane of adjacent cells. This defect is important because ligand binding causes **EphA2** to transmit signals that neg. regulate tumor cell growth and survival, whereas the absence of ligand binding favors these same behaviors. In our present study, human adenoviral type 5 (HAd) vectors

were engineered to express secreted-forms of EphrinA1. These vectors were used to infect MDA-MB-231 human breast cancer cells, or MCF-10A human breast epithelial cells providing matched controls. Infection with HAd-EphrinA1-Fc (HAd vector expressing extracellular domain of human EphrinA1 attached to Fc portion of human IgG1 heavy chain) caused increased **EphA2** activation and turnover and consequently decreased tumor cell viability in soft agar assays. Consistent with this observation, infection of MDA-MB-231 cells with HAd-EphrinA1-Fc prevented tumor formation in xenograft models. Furthermore, therapeutic modeling via intratumoral inoculation revealed that HAd-EphrinA1-Fc significantly inhibited subsequent tumor growth as compared to matched controls. These results suggest that targeting of **EphA2** with adenoviral vectors may have therapeutic value.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Addison, C	1995	92	8522	Proc Natl Acad Sci U	HCAPLUS
Akbulut, H	2003	10	388	Cancer Gene Ther	HCAPLUS
Ambar, B	1999	10	1641	Hum Gene Ther	HCAPLUS
Andres, A	1995	63	288	Int J Cancer	HCAPLUS
Bangari, D	2004			Virus Res, in press	
Bartley, T	1994	368	558	Nature	HCAPLUS
Carles-Kinch, K	2002	62	2840	Cancer Res	HCAPLUS
Chen, L	1996	22	477	Somat Cell Mol Genet	HCAPLUS
Coffman, K	2003	63	7907	Cancer Res	HCAPLUS
Curiel, D	2000	6	3395	Clin Cancer Res	HCAPLUS
Dickson, R	1995	16	559	Endocr Rev	HCAPLUS
Ding, Y	2002	8	3290	Clin Cancer Res	HCAPLUS
Dohn, M	2001	20	6503	Oncogene	HCAPLUS
Easty, D	1995	55	2528	Cancer Res	HCAPLUS
George, J	2003	10	1135	Gene Therapy	
Graham, F	1977	36	59	J Gen Virol	MEDLINE
Graham, F	1991		109	Methods of Molecular	HCAPLUS
Graham, F	1973	52	456	Virology	MEDLINE
Hitt, M	2000	55	479	Adv Virus Res	HCAPLUS
Kikawa, K	2002	277	39274	J Biol Chem	HCAPLUS
Kinch, M	2003	20	59	Clin Exp Metast	HCAPLUS
Kinch, M	1998	17	227	Hybridoma	HCAPLUS
Koolpe, M	2002	277	46974	J Biol Chem	HCAPLUS
Kullander, K	2001	29	73	Neuron	HCAPLUS
Liu, Y	2002	9	202	Cancer Gene Ther	HCAPLUS
Liu, Y	2002	9	533	Cancer Gene Ther	HCAPLUS
Miao, H	2001	3	527	Nat Cell Biol	HCAPLUS
Ng, P	1999	10	2667	Hum Gene Ther	HCAPLUS
Palmer, K	2001	8	282	Gene Therapy	HCAPLUS
Parks, R	1999	6	1565	Gene Therapy	HCAPLUS
Price, J	1986	77	529	J Natl Cancer Inst	MEDLINE
Rosenberg, I	1997	273	G824	Am J Physiol	HCAPLUS
Sambrook, J	2001			Molecular Cloning:A	
Stewart, A	1999	6	350	Gene Therapy	HCAPLUS
Trudel, S	2001	15	846	Leukemia	HCAPLUS
Vlachaki, M	2001	51	1008	Int J Radiat Oncol B	HCAPLUS
Walker-Daniels, J	2003	162	1037	Am J Pathol	HCAPLUS
Walker-Daniels, J	1999	41	275	Prostate	HCAPLUS
Wen, X	2001	8	361	Cancer Gene Ther	HCAPLUS
Zantek, N	1999	10	629	Cell Growth Differ	HCAPLUS
Zelinski, D	2001	61	2301	Cancer Res	HCAPLUS
Zisch, A	2000	19	177	Oncogene	HCAPLUS

L26 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:878784 HCAPLUS
DN 142:4180
TI **EphA2** Induction of Fibronectin Creates a Permissive Microenvironment for Malignant Cells
AU Hu, Min; Carles-Kinch, Kelly L.; Zelinski, Daniel P.; **Kinch, Michael S.**
CS Department of Basic Medical Sciences, Purdue University Cancer Center, Gaithersburg, MD, USA
SO Molecular Cancer Research (2004), 2(10), 533-540
CODEN: MCROC5; ISSN: 1541-7786
PB American Association for Cancer Research
DT Journal
LA English
AB Normal and metastatic cells continuously exchange information with the surrounding tissue environment, and this communication governs many aspects of cell behavior. In particular, the phys. placement or adhesions of cells within their environment are increasingly understood to facilitate this communication. Classically, cell-cell and cell-extracellular matrix adhesions have been viewed as separable events that are independently controlled. This simple view is changing, as evidence emerges of coordinated regulation of cellular adhesions. Here, the authors show that the **EphA2** tyrosine kinase, which is overexpressed in many aggressive cancers, regulates a fine balance of cell-cell and cell-extracellular matrix adhesions in epithelial cells. **EphA2** selectively inhibits cell-cell adhesions by increasing cell attachment and up-regulating the extracellular matrix protein fibronectin. The authors also show that fibronectin can contribute to important aspects of malignant character. Antibody-based targeting of **EphA2** inhibits malignant cell growth by decreasing fibronectin and thereby inducing apoptotic death. These findings strengthen a concept that cancer progression is regulated by a bidirectional communication between tumor cells and their surrounding microenvironment.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bartley, T	1994	368	558	Nature	HCAPLUS
Carles-Kinch, K	2002	62	2840	Cancer Res	HCAPLUS
Chiarugi, P	2004	23	3905	Oncogene	HCAPLUS
Coffman, K	2003	63	7907	Cancer Res	HCAPLUS
Cunha, G	2003	107	1	Int J Cancer	HCAPLUS
D'Amico, T	2001	72	1144	Ann Thorac Surg	MEDLINE
Easty, D	1999	84	494	Int J Cancer	HCAPLUS
Fidler, I	1995	87	1588	J Natl Cancer Inst	MEDLINE
Frisch, S	1997	9	701	Curr Opin Cell Biol	HCAPLUS
Hansen, R	2000	7	95	Endocr Relat Cancer	HCAPLUS
Hayward, S	1998	13	35	Int J Oncol	HCAPLUS
Hazlehurst, L	2001	20	43	Cancer Metastasis Re	HCAPLUS
Hendrix, M	2003	22	3070	Oncogene	HCAPLUS
Hess, A	2001	61	3250	Cancer Res	HCAPLUS
Howlett, A	1995	108	1945	J Cell Sci	HCAPLUS
Huhtala, P	1995	129	867	J Cell Biol	HCAPLUS
Hunter, T	1997	88	333	Cell	HCAPLUS
Juliano, R	1994	24	118	Princess Takamatsu S	MEDLINE
Keely, P	1998	8	101	Trends Cell Biol	HCAPLUS
Kikawa, K	2002	277	39274	J Biol Chem	HCAPLUS
Kinch, M	1995	23	446	Biochem Soc Trans	HCAPLUS
Kinch, M	2003	9	613	Clin Cancer Res	HCAPLUS
Kinch, M	2003	20	59	Clin Exp Metastasis	HCAPLUS

Koolpe, M	2002	277	46974	J Biol Chem	HCAPLUS
Li, L	1989	81	1406	J Natl Cancer Inst	MEDLINE
Lynch, C	2002	70	561	Differentiation	HCAPLUS
McCawley, L	2000	6	149	Mol Med Today	HCAPLUS
Miao, H	2000	2	62	Nat Cell Biol	HCAPLUS
Miao, H	2001	3	527	Nat Cell Biol	HCAPLUS
Miyazaki, T	2003	103	657	Int J Cancer	HCAPLUS
Nakamoto, M	2002	59	58	Microsc Res Tech	HCAPLUS
Ogawa, K	2000	19	6043	Oncogene	HCAPLUS
Olumi, A	1999	59	5002	Cancer Res	HCAPLUS
Onn, A	2002	16	423	In Vivo	
Park, C	2000	6	324	Mol Med Today	HCAPLUS
Radinsky, R	1995	31A	1091	Eur J Cancer	HCAPLUS
Rosenberg, I	1997	273	G824	Am J Physiol	HCAPLUS
Ruoslahti, E	1999	76	1	Adv Cancer Res	HCAPLUS
Steeg, P	2003	3	55	Nat Rev Cancer	HCAPLUS
Tlsty, T	2001	11	54	Curr Opin Genet Dev	HCAPLUS
Walker-Daniels, J	2003	162	1037	Am J Pathol	HCAPLUS
Walker-Daniels, J	2002	1	79	Mol Cancer Res	HCAPLUS
Walker-Daniels, J	1999	41	275	Prostate	HCAPLUS
Weaver, V	1999	4	193	J Mammary Gland Biol	MEDLINE
Welch, D	2000	2	408	Breast Cancer Res	HCAPLUS
Yu, J	2002	70	599	Differentiation	
Zantek, N	1999	10	629	Cell Growth Differ	HCAPLUS
Zelinski, D	2001	61	2301	Cancer Res	HCAPLUS
Zeng, G	2003	163	2271	Am J Pathol	HCAPLUS

L26 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:630173 HCAPLUS
DN 141:329420
TI **EphA2** Expression Is Associated with Aggressive Features in Ovarian Carcinoma
AU Thaker, Premal H.; Deavers, Michael; Celestino, Joseph; Thornton, Angela; Fletcher, Mavis S.; Landen, Charles N.; **Kinch, Michael S.**; **Kiener, Peter A.**; Sood, Anil K.
CS Department of Gynecologic Oncology, the University of Texas M. D. Anderson Cancer Center, Houston, TX, USA
SO Clinical Cancer Research (2004), 10(15), 5145-5150
CODEN: CCREF4; ISSN: 1078-0432
PB American Association for Cancer Research
DT Journal
LA English
AB PURPOSE: **EphA2** (epithelial cell kinase) is a transmembrane receptor tyrosine kinase that has been implicated in oncogenesis. There are no published data regarding the role of **EphA2** in ovarian carcinoma, which is the focus of the present study. Exptl. Design: Nontransformed (HIO-180) and ovarian cancer (EG, 222, SKOV3, and A2780-PAR) cell lines were evaluated for **EphA2** by Western blot anal. Five benign ovarian masses, 10 ovarian tumors of low malignant potential, and 79 invasive ovarian carcinomas were also evaluated for **EphA2** expression by immunohistochem. All samples were scored in a blinded fashion. Univariate and multivariate analyses were used to determine significant assocns. between **EphA2** expression and clinicopathol. variables. RESULTS: By Western blot anal., EG, 222, and SKOV3 cell lines overexpressed **EphA2**, whereas A2780-PAR and HIO-180 had low to absent **EphA2** expression. All of the benign tumors had low or absent **EphA2** expression. Among the invasive ovarian carcinomas examined (mean age of patients was 59.2 yr), 60 (75.9%) tumors overexpressed **EphA2** and the other 19 tumors had neg. or minimal **EphA2** expression. There was no association of **EphA2** overexpression with

ascites, likelihood of nodal positivity, pathol. subtype, and optimum surgical cytoredn. (residual tumor <1 cm). However, **EphA2** overexpression was significantly associated with higher tumor grade (P = 0.02) and advanced stage of disease (P = 0.001). The median survival for patients with tumor **EphA2** overexpression was significantly shorter (median, 3.1 yr; P = 0.004); the median survival for patients with low or absent **EphA2** tumor expression was at least 12 yr and has not yet been reached. In multivariate anal. using the Cox proportional hazards model, only volume of residual disease (P < 0.04) and **EphA2** overexpression (P < 0.01) were significant and independent predictors of survival. CONCLUSIONS: **EphA2** overexpression is predictive of aggressive ovarian cancer behavior and may be an important therapeutic target.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Andres, A	1994	9	1461	Oncogene	HCAPLUS
Auersperg, N	1999	96	6249	Proc Natl Acad Sci U	HCAPLUS
Birchmeier, W	1996	213	117	Curr Top Microbiol I	HCAPLUS
Carles-Kinch, K	2002	62	2840	Cancer Res	HCAPLUS
Coffman, K	2003	63	7907	Cancer Res	HCAPLUS
Dodelet, V	2000	19	5614	Oncogene	HCAPLUS
Dohn, M	2001	20	6503	Oncogene	HCAPLUS
Drescher, U	1997	7	75	Curr Opin Neurobiol	HCAPLUS
du Bois, A	1999	10	35	Ann Oncol	
Easty, D	2000	10	401	Melanoma Res	HCAPLUS
Flanagan, J	1998	21	309	Annu Rev Neurosci	HCAPLUS
Flanagan, J	1997	90	403	Cell	HCAPLUS
Gale, N	1996	17	9	Neuron	HCAPLUS
Ganju, P	1994	9	1613	Oncogene	HCAPLUS
Geiger, B	1992	57	631	Cold Spring Harb Sym	HCAPLUS
Hainaut, P	2000	77	81	Adv Cancer Res	HCAPLUS
Hendrix, M	2001	98	8018	Proc Natl Acad Sci U	HCAPLUS
Hess, A	2001	61	3250	Cancer Res	HCAPLUS
Hess, A	2002	43	36	Proc Am Assoc Cancer	
Hirai, H	1987	238	1717	Science (Wash DC)	HCAPLUS
Hunter, T	1992	57	25	Cold Spring Harb Sym	HCAPLUS
Jemal, A	2003	53	5	CA Cancer J Clin	
Kikawa, K	2002	277	39274	J Biol Chem	HCAPLUS
Kinch, M	1995	23	446	Biochem Soc Trans	HCAPLUS
Kinch, M	2003	20	59	Clin Exp Metastasis	HCAPLUS
Koolpe, M	2002	277	46974	J Biol Chem	HCAPLUS
Lamorte, L	2001	10	271	Surg Oncol Clin N Am	MEDLINE
Lindberg, R	1990	10	6316	Mol Cell Biol	HCAPLUS
McGuire, W	1996	334	1	N Engl J Med	HCAPLUS
Miao, H	2000	2	62	Nat Cell Biol	HCAPLUS
Miao, H	2001	3	527	Nat Cell Biol	HCAPLUS
Miyazaki, T	2003	103	657	Int J Cancer	HCAPLUS
Nakamoto, M	2002	59	58	Microsc Res Tech	HCAPLUS
Ogawa, K	2000	19	6043	Oncogene	HCAPLUS
Orioli, D	1997	13	354	Trends Genet	HCAPLUS
Pandey, A	1994	269	30154	J Biol Chem	HCAPLUS
Pandey, A	1995	270	19201	J Biol Chem	HCAPLUS
Pandey, A	1995	268	567	Science (Wash DC)	HCAPLUS
Pejovic, T	1995	27	73	Ann Med	MEDLINE
Pratt, R	2002	21	7690	Oncogene	HCAPLUS
Rosenberg, I	1997	273	G824	Am J Physiol	HCAPLUS
Sood, A	2001	158	1279	Am J Pathol	HCAPLUS
Sood, A	2002	1	661	Cancer Biol Ther	

Sood, A	1999	5	2485	Clin Cancer Res	HCAPLUS
Sood, A	2002	9	2	J Soc Gyn Invest	
Straume, O	2002	160	1009	Am J Pathol	HCAPLUS
Sultan, E	1997	40	371	Genomics	
Vousden, K	2002	1602	47	Biochem Biophys Acta	HCAPLUS
Walker-Daniels, J	2003	162	1037	Am J Pathol	HCAPLUS
Walker-Daniels, J	2002	1	79	Mol Cancer Res	HCAPLUS
Walker-Daniels, J	1999	41	275	Prostate	HCAPLUS
Zantek, N	1999	10	629	Cell Growth Differ	HCAPLUS
Zeliniski, D	2001	61	2301	Cancer Res	
Zetter, B	1993	4	219	Semin Cancer Biol	HCAPLUS

=> => fil medline
FILE 'MEDLINE' ENTERED AT 12:31:34 ON 07 JUL 2005

FILE LAST UPDATED: 6 JUL 2005 (20050706/UP). FILE COVERS 1950 TO DATE.

On December 19, 2004, the 2005 MeSH terms were loaded.

The MEDLINE reload for 2005 is now available. For details enter HELP RLOAD at an arrow promt (=>). See also:

http://www.nlm.nih.gov/mesh/
http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all tot

L52 ANSWER 1 OF 11 MEDLINE on STN
AN **2003596894** MEDLINE
DN PubMed ID: **14679012**
TI **EphA2** as target of anticancer immunotherapy: identification of HLA-A*0201-restricted epitopes.
AU Alves Pedro M S; Faure Olivier; Graff-Dubois Stephanie; Gross David-Alexandre; Cornet Sebastien; Chouaib Salem; Miconnet Isabelle; Lemonnier Francois A; Kosmatopoulos Kostas
CS INSERM487, Institut Gustave Roussy, Villejuif. Unite d'Immunite Cellulaire Antivirale, Institut Pasteur, Paris. Immuno-Designed Molecules, Paris, France.
SO Cancer research, **(2003 Dec 1)** 63 (23) 8476-80.
Journal code: 2984705R. ISSN: 0008-5472.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200402
ED Entered STN: 20031218
Last Updated on STN: 20040302
Entered Medline: 20040227
AB **EphA2** (Eck) is a tyrosine kinase receptor that is overexpressed in several human cancers such as breast, colon, lung, prostate, gastric carcinoma, and metastatic melanoma but not in nonmalignant counterparts.

To validate **EphA2** as a tumor antigen recognized by CD8+ T lymphocytes, we used reverse immunology approach to identify HLA-A*0201-restricted epitopes. Peptides bearing the HLA-A*0201-specific anchor motifs were analyzed for their capacity to bind and stabilize the HLA-A*0201 molecules. Two peptides, **EphA2**(58) and **EphA2** (550), with a high affinity for HLA-A*0201 were selected. Both peptides were immunogenic in the HLA-A*0201-transgenic HHD mice. Interestingly, peptide-specific murine CTLs cell lines responded to COS-7 cells coexpressing HLA-A*0201 and **EphA2** and to **EphA2** -positive human tumor cells of various origin (renal cell, lung, and colon carcinoma and sarcoma). This demonstrates that **EphA2**(58) and **EphA2**(550) are naturally processed from endogenous **EphA2** . In addition, **EphA2**(58) and **EphA2**(550) stimulated specific CD8(+) T cells from healthy donor peripheral blood mononuclear cells. These T cells recognized **EphA2**-positive human tumor cells in an HLA-A*0201-restricted manner. Interestingly, **EphA2** -specific CD8+ T cells were detected in the peripheral blood mononuclear cells of prostate cancer patients. These results show for the first time that **EphA2** is a tumor rejection antigen and lead us to propose **EphA2**(58) and **EphA2**(550) peptides for a broad-spectrum-tumor immunotherapy.

CT Animals
CD8-Positive T-Lymphocytes: IM, immunology
COS Cells
Cell Line, Tumor
Cercopithecus aethiops
Epitope Mapping
Epitopes, T-Lymphocyte: IM, immunology
*HLA-A Antigens: IM, immunology
*Immunotherapy: MT, methods
Lymphocyte Activation: IM, immunology
Mice
Mice, Transgenic
Neoplasms: EN, enzymology
Neoplasms: IM, immunology
*Neoplasms: TH, therapy
*Peptide Fragments: IM, immunology
Peptide Fragments: PD, pharmacology
***Receptor, EphA2: IM, immunology**
Research Support, Non-U.S. Gov't
T-Lymphocytes, Cytotoxic: IM, immunology

CN 0 (Epitopes, T-Lymphocyte); 0 (HLA-A Antigens); 0 (HLA-A*0201 antigen); 0 (Peptide Fragments); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 2 OF 11 MEDLINE on STN
AN **2003282791** MEDLINE
DN PubMed ID: **12810680**
TI **EphA2** overexpression decreases estrogen dependence and tamoxifen sensitivity.
AU Lu Ming; Miller Kathy D; Gokmen-Polar Yesim; Jeng Meei-Huey; Kinch Michael S
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, Indiana 47907, USA.
NC CA91318 (NCI)
SO Cancer research, **(2003 Jun 15)** 63 (12) 3425-9.
Journal code: 2984705R. ISSN: 0008-5472.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals

EM 200307
ED Entered STN: 20030618
Last Updated on STN: 20030729
Entered Medline: 20030728
AB The **EphA2** receptor tyrosine kinase is found at low levels on nontransformed adult breast epithelial cells but is frequently overexpressed on aggressive breast cancer cells. Recent studies have documented an inverse relationship between **EphA2** and estrogen receptor expression in breast cancer cell lines. In our present study, we demonstrate that overexpression of **EphA2** decreases estrogen dependence as defined using both in vitro and in vivo criteria. The **EphA2**-transfected cells demonstrate increased growth in vitro and form larger and more aggressive tumors in vivo. **EphA2** overexpression also decreases the ability of tamoxifen to inhibit breast cancer cell growth and tumorigenesis. These effects of **EphA2** overexpression can be overcome by antibody-based targeting of **EphA2.** In particular, certain **EphA2** antibodies can resensitize **EphA2**-overexpressing breast tumor cells to tamoxifen. These results have important implications for understanding the molecular basis underlying estrogen dependence and provide further evidence that **EphA2** may provide a much-needed therapeutic target for breast cancer.
CT Check Tags: Female
Adenocarcinoma: ME, metabolism
*Adenocarcinoma: PA, pathology
Animals
Antibodies, Monoclonal: PD, pharmacology
*Antineoplastic Agents, Hormonal: PD, pharmacology
Breast Neoplasms: ME, metabolism
*Breast Neoplasms: PA, pathology
*Drug Resistance, Neoplasm
Estradiol: PD, pharmacology
*Estrogen Receptor Modulators: PD, pharmacology
*Estrogens
Genes, Reporter
Humans
Mice
Mice, Nude
Neoplasm Invasiveness
*Neoplasm Proteins: ME, metabolism
Neoplasm Transplantation
Neoplasms, Hormone-Dependent: ME, metabolism
*Neoplasms, Hormone-Dependent: PA, pathology
Receptor, EphA2: AI, antagonists & inhibitors
Receptor, EphA2: GE, genetics
Receptor, EphA2: IM, immunology
***Receptor, EphA2: PH, physiology**
*Receptors, Estrogen: ME, metabolism
Recombinant Fusion Proteins: PH, physiology
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Stress
*Tamoxifen: PD, pharmacology
Tumor Cells, Cultured: ME, metabolism
Tumor Cells, Cultured: PA, pathology
Xenograft Model Antitumor Assays
RN 10540-29-1 (Tamoxifen); 50-28-2 (Estradiol)
CN 0 (Antibodies, Monoclonal); 0 (Antineoplastic Agents, Hormonal); 0 (Estrogen Receptor Modulators); 0 (Estrogens); 0 (Neoplasm Proteins); 0

(Receptors, Estrogen); 0 (Recombinant Fusion Proteins); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 3 OF 11 MEDLINE on STN
AN **2003136340** MEDLINE
DN PubMed ID: **12651595**
TI Differential regulation of **EphA2** in normal and malignant cells.
AU Walker-Daniels Jennifer; Hess Angela R; Hendrix Mary J C; Kinch Michael S
CS Department of Basic Medical Sciences, Purdue University Cancer Center, West Lafayette, Indiana, USA.
NC 1 R21 CA85615 (NCI)
2 R37 CA59702 (NCI)
2 T32 CA79445-03 (NCI)
SO American journal of pathology, **(2003 Apr)** 162 (4) 1037-42. Ref: 74
Journal code: 0370502. ISSN: 0002-9440.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200306
ED Entered STN: 20030325
Last Updated on STN: 20030613
Entered Medline: 20030612
CT *Gene Expression Regulation: PH, physiology
*Gene Expression Regulation, Neoplastic: PH, physiology
Humans
*Neoplasms: GE, genetics
*Neoplasms: PA, pathology
***Receptor, EphA2: GE, genetics**
Reference Values
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Signal Transduction
CN EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 4 OF 11 MEDLINE on STN
AN **2003135956** MEDLINE
DN PubMed ID: **12650608**
TI Overexpression and functional alterations of the **EphA2** tyrosine kinase in cancer.
AU Kinch Michael S; Carles-Kinch Kelly
CS MedImmune, Inc., Gaithersburg, Maryland 20878, USA.. kinchm@medimmune.com
SO Clinical & experimental metastasis, **(2003)** 20 (1) 59-68. Ref: 92
Journal code: 8409970. ISSN: 0262-0898.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 200303
ED Entered STN: 20030325
Last Updated on STN: 20030401
Entered Medline: 20030331
AB Cancer is a disease of aberrant signal transduction. The expression and function of intracellular signaling pathways are frequently subverted as

cells progress towards a metastatic phenotype. In particular, tyrosine kinases initiate powerful signals that govern many different aspects of cell behavior. In Recent studies have demonstrated that the **EphA2** receptor tyrosine kinase is frequently overexpressed and functionally altered in aggressive tumor cells, and that these changes promote metastatic character. Herein, we provide an overview of our current understanding of **EphA2**, with emphasis upon the differential regulation of **EphA2** expression and function. We also show that differential **EphA2** expression and function may provide a unique opportunity for selective therapeutic targeting of **EphA2** in metastatic disease.

CT Gene Expression Regulation, Neoplastic
Humans
Models, Biological
Neoplasm Metastasis
Neoplasms: GE, genetics
*Neoplasms: ME, metabolism
Neoplasms: PA, pathology
Nervous System: EM, embryology
Nervous System: EN, enzymology
Nervous System: GD, growth & development
Receptor, EphA2: GE, genetics
***Receptor, EphA2: ME, metabolism**
Receptor, EphA2: PH, physiology

CN EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 5 OF 11 MEDLINE on STN
AN **2003066115** MEDLINE
DN PubMed ID: **12576426**
TI Predictive value of the **EphA2** receptor tyrosine kinase in lung cancer recurrence and survival.
AU Kinch Michael S; Moore Mary-Beth; Harpole David H Jr
CS MedImmune, Inc., Gaithersburg, Maryland 20878, USA.
SO Clinical cancer research : an official journal of the American Association for Cancer Research, **(2003 Feb)** 9 (2) 613-8.
Journal code: 9502500. ISSN: 1078-0432.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200308
ED Entered STN: 20030211
Last Updated on STN: 20030802
Entered Medline: 20030801
AB PURPOSE: Underestimation of disease severity is a major problem confronting the successful clinical management of non-small cell lung cancer. Recent advances in molecular biological substaging may provide an opportunity to identify those patients with the most aggressive forms of the disease, but there is a continuing need for accurate markers of disease relapse and survival. EXPERIMENTAL DESIGN: In our present study, immunohistochemical analyses of a retrospective database of pathologic specimens were used to demonstrate that the **EphA2** receptor kinase is frequently overexpressed in NSCLC. RESULTS: Initial presentation with high levels of **EphA2** predicts subsequent survival, overall relapse, and site of relapse. Specifically, high levels of **EphA2** in the primary tumor predict brain metastases, whereas low levels of **EphA2** relate to disease-free survival or contralateral lung metastasis. CONCLUSIONS: These data suggest that **EphA2** may provide a molecular marker to identify and predict patients who have isolated brain metastases. Moreover, the high levels of

EphA2 in lung cancer may provide an opportunity for therapeutic targeting.

CT Check Tags: Female; Male
Brain Neoplasms: PA, pathology
Brain Neoplasms: SC, secondary
Carcinoma, Non-Small-Cell Lung: MO, mortality
*Carcinoma, Non-Small-Cell Lung: PA, pathology
Disease-Free Survival
Humans
Immunohistochemistry
Lung Neoplasms: MO, mortality
*Lung Neoplasms: PA, pathology
Lung Neoplasms: SC, secondary
Middle Aged
Neoplasm Metastasis
Neoplasm Staging
Predictive Value of Tests
***Receptor, EphA2: ME, metabolism**
Recurrence
Survival Analysis
Survival Rate
Time Factors
Tumor Markers, Biological: ME, metabolism

CN 0 (Tumor Markers, Biological); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 6 OF 11 MEDLINE on STN
AN **2002734145** MEDLINE
DN PubMed ID: **12496364**
TI Blockade of EphA receptor tyrosine kinase activation inhibits vascular endothelial cell growth factor-induced angiogenesis.
AU Cheng Nikki; Brantley Dana M; Liu Hua; Lin Qin; Enriquez Miriam; Gale Nick; Yancopoulos George; Cerretti Douglas Pat; Daniel Thomas O; Chen Jin
CS Department of Cancer Biology, Medicine, Vanderbilt University School of Medicine, Nashville, TN 37232, USA.
NC DK47078 (NIDDK)
HD36400 (NICHD)
P30CA68485 (NCI)
T-32 CA09592 (NCI)
T32-HL-07751-06 (NHLBI)
SO Molecular cancer research : MCR, **(2002 Nov)** 1 (1) 2-11.
Journal code: 101150042. ISSN: 1541-7786.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200306
ED Entered STN: 20021227
Last Updated on STN: 20030612
Entered Medline: 20030611
AB Angiogenesis is a multistep process involving a diverse array of molecular signals. Ligands for receptor tyrosine kinases (RTKs) have emerged as critical mediators of angiogenesis. Three families of ligands, vascular endothelial cell growth factors (VEGFs), angiopoietins, and ephrins, act via RTKs expressed in endothelial cells. Recent evidence indicates that VEGF cooperates with angiopoietins to regulate vascular remodeling and angiogenesis in both embryogenesis and tumor neovascularization. However, the relationship between VEGF and ephrins remains unclear. Here we show that interaction between EphA RTKs and ephrinA ligands is necessary for induction of maximal neovascularization by VEGF. **EphA2** RTK is activated by VEGF through induction of ephrinA1 ligand. A soluble

EphA2-Fc receptor inhibits VEGF-, but not basic fibroblast growth factor-induced endothelial cell survival, migration, sprouting, and corneal angiogenesis. As an independent, but complementary approach, **EphA2** antisense oligonucleotides inhibited endothelial expression of **EphA2** receptor and suppressed ephrinA1- and VEGF-induced cell migration. Taken together, these data indicate an essential role for EphA receptor activation in VEGF-dependent angiogenesis and suggest a potential new target for therapeutic intervention in pathogenic angiogenesis.

CT *Angiogenesis Inhibitors: PD, pharmacology
Animals
Apoptosis: DE, drug effects
Cell Division: DE, drug effects
Cell Movement: DE, drug effects
Cell Survival: DE, drug effects
Cells, Cultured
Corneal Neovascularization
*Endothelial Growth Factors: AI, antagonists & inhibitors
Endothelium, Vascular: CY, cytology
*Endothelium, Vascular: DE, drug effects
Endothelium, Vascular: PH, physiology
*Enzyme Activation: PH, physiology
Ephrin-A1: ME, metabolism
Ephrin-A1: PD, pharmacology
Fibroblast Growth Factor 2: PD, pharmacology
Humans
Intercellular Signaling Peptides and Proteins
*Lymphokines: AI, antagonists & inhibitors
Mice
Mice, Inbred C57BL
*Neovascularization, Physiologic: DE, drug effects
Oligonucleotides, Antisense: PD, pharmacology
Phosphorylation
***Receptor, EphA2: AI, antagonists & inhibitors**
Receptor, EphA2: ME, metabolism
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, P.H.S.
Umbilical Veins: CY, cytology
Vascular Endothelial Growth Factor A
Vascular Endothelial Growth Factors

RN 103107-01-3 (Fibroblast Growth Factor 2)

CN 0 (Angiogenesis Inhibitors); 0 (Endothelial Growth Factors); 0 (Ephrin-A1); 0 (Intercellular Signaling Peptides and Proteins); 0 (Lymphokines); 0 (Oligonucleotides, Antisense); 0 (Vascular Endothelial Growth Factor A); 0 (Vascular Endothelial Growth Factors); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 7 OF 11 MEDLINE on STN
AN **2002730653** MEDLINE
DN PubMed ID: **12494475**
TI **EphA2** overexpression correlates with poor prognosis in esophageal squamous cell carcinoma.
AU Miyazaki Tatsuya; Kato Hiroyuki; Fukuchi Minoru; Nakajima Masanobu; Kuwano Hiroyuki
CS Department of Surgery I, Gunma University Faculty of Medicine, Gunma, Japan.. tatsuyam@showa.gunma-u.ac.jp
SO International journal of cancer. Journal international du cancer, **(2003 Feb 20)** 103 (5) 657-63.
Journal code: 0042124. ISSN: 0020-7136.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 200302
ED Entered STN: 20021221
Last Updated on STN: 20030207
Entered Medline: 20030206

AB **EphA2** is a member of the Eph family of receptor tyrosine kinases, which interact with cell-bound ligands known as ephrins. **EphA2** expression was investigated by immunohistochemistry with an anti-**EphA2** monoclonal antibody in 80 patients with esophageal squamous cell carcinoma (ESCC) who had undergone surgery. **EphA2** overexpression was positive in 40 of the 80 patients (50%). A significant correlation was observed between **EphA2** expression and regional lymph node metastasis (p=0.023), number of lymph node metastases (p=0.011) and poor degree of tumor differentiation (p=0.004). The survival rates of **EphA2**-positive patients were poorer than those of **EphA2** -negative patients (p=0.014). The 5-year survival rate of patients without **EphA2** overexpression was 68%, whereas that of patients with **EphA2** overexpression was 29%. **EphA2** expression was also investigated in 7 ESCC cell lines (TE-1, -2, -8, -13, -15, TT and TTn) and 1 immortalized human esophageal keratinocyte cell line (CHEK-1). Western blotting revealed different levels of **EphA2** expression in the 8 cell lines. **EphA2** was expressed at a high level in the ESCC cell lines compared to CHEK-1. **EphA2** phosphorylation was demonstrated in all cell lines. Northern blot analysis showed that **EphA2** mRNA expression in TE-1 was greater than that in the other ESCC cell lines. The observation of small gaps on Western blot analysis of the ESCC cell lines suggests that there may be a mechanism for **EphA2** regulation at the point of translation. In conclusion, **EphA2** overexpression appears to be related to poor degree of tumor differentiation and lymph node metastasis in ESCC. Consequently, patients with **EphA2** overexpression have a poorer prognosis than those without. **EphA2** is a potential target to prevent ESCC cells spreading into the lymphatic drainage.

CT Check Tags: Comparative Study; Female; Male
Adult
Aged
Blotting, Northern
Blotting, Western
*Carcinoma, Squamous Cell: GE, genetics
Carcinoma, Squamous Cell: ME, metabolism
Carcinoma, Squamous Cell: SC, secondary
Cysteine Proteinase Inhibitors: PD, pharmacology
DNA, Neoplasm: AN, analysis
Ephrin-A1: ME, metabolism
Ephrin-A1: PD, pharmacology
*Esophageal Neoplasms: GE, genetics
Esophageal Neoplasms: ME, metabolism
Esophageal Neoplasms: PA, pathology
Gene Expression Regulation, Neoplastic
Humans
Immunoenzyme Techniques
Leupeptins: PD, pharmacology
Lymphatic Metastasis: GE, genetics
Middle Aged
Mutation
Phosphorylation
Prognosis
Protein-Tyrosine Kinase: ME, metabolism

RNA, Neoplasm: ME, metabolism
Receptor, EphA2: GE, genetics
***Receptor, EphA2: ME, metabolism**
Survival Rate
Tumor Cells, Cultured
RN 133407-82-6 (benzyloxycarbonylleucyl-leucyl-leucine aldehyde)
CN 0 (Cysteine Proteinase Inhibitors); 0 (DNA, Neoplasm); 0 (Ephrin-A1); 0 (Leupeptins); 0 (RNA, Neoplasm); EC 2.7.1.112 (Protein-Tyrosine Kinase); EC 2.7.1.112 (Receptor, **EphA2**); EC 2.7.1.112 (focal adhesion kinase)

L52 ANSWER 8 OF 11 MEDLINE on STN
AN **2002696033** MEDLINE
DN PubMed ID: **12351647**
TI An ephrin mimetic peptide that selectively targets the **EphA2** receptor.
AU Koolpe Mitchell; Dail Monique; Pasquale Elena B
CS Burnham Institute, La Jolla, California 92037, USA.
NC CA82713 (NCI)
SO Journal of biological chemistry, **(2002 Dec 6)** 277 (49) 46974-9.
Electronic Publication: 2002-09-25.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200302
ED Entered STN: 20021217
Last Updated on STN: 20030205
Entered Medline: 20030204
AB Eph receptor tyrosine kinases represent promising disease targets because they are differentially expressed in pathologic versus normal tissues. The **EphA2** receptor is up-regulated in transformed cells and tumor vasculature where it likely contributes to cancer pathogenesis. To exploit **EphA2** as a therapeutic target, we used phage display to identify two related peptides that bind selectively to **EphA2** with high affinity (submicromolar K(D) values). The peptides target the ligand-binding domain of **EphA2** and compete with ephrin ligands for binding. Remarkably, one of the peptides has ephrin-like activity in that it stimulates **EphA2** tyrosine phosphorylation and signaling. Furthermore, this peptide can deliver phage particles to endothelial and tumor cells expressing **EphA2.** In contrast, peptides corresponding to receptor-interacting portions of ephrin ligands bind weakly and promiscuously to many Eph receptors. Bioactive ephrin mimetic peptides could be used to selectively deliver agents to Eph receptor-expressing tissues and modify Eph signaling in therapies for cancer, pathological angiogenesis, and nerve regeneration.
CT Amino Acid Sequence
Dose-Response Relationship, Drug
Endothelium, Vascular: CY, cytology
Enzyme-Linked Immunosorbent Assay
*Ephrins: CH, chemistry
Humans
Hydrogen-Ion Concentration
Immunoblotting
Kinetics
Ligands
Molecular Sequence Data
Peptides: CH, chemistry
Phosphorylation

Plasmids: ME, metabolism
Precipitin Tests
Protein Binding
Protein Structure, Tertiary
Protein-Tyrosine Kinase: ME, metabolism
***Receptor, EphA2: CH, chemistry**
Receptor, EphA2: ME, metabolism
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Sequence Homology, Amino Acid
Signal Transduction
Tyrosine: ME, metabolism
Umbilical Veins: ME, metabolism

RN 55520-40-6 (Tyrosine)
CN 0 (Ephrins); 0 (Ligands); 0 (Peptides); 0 (Plasmids); EC 2.7.1.112 (Protein-Tyrosine Kinase); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 9 OF 11 MEDLINE on STN
AN **2002398166** MEDLINE
DN PubMed ID: **12147253**
TI Negative regulation of **EphA2** receptor by Cbl.
AU Wang You jie; Ota Satoshi; Kataoka Hideki; Kanamori Masao; Li Zhong you; Band Hamid; Tanaka Masamitsu; Sugimura Haruhiko
CS First Department of Pathology, Hamamatsu University School of Medicine, 1-20-1, Handayama, 431-3192, Hamamatsu, Japan.
NC CA75075 (NCI)
CA76118 (NCI)
CA87986 (NCI)
SO Biochemical and biophysical research communications, **(2002 Aug 9)** 296 (1) 214-20.
Journal code: 0372516. ISSN: 0006-291X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200209
ED Entered STN: 20020731
Last Updated on STN: 20020907
Entered Medline: 20020906
AB The c-Cbl proto-oncogene product Cbl has emerged as a negative regulator of receptor and non-receptor tyrosine kinases, a function dependent on its recently identified ubiquitin ligase activity. Here, we report that **EphA2**, a member of Eph receptor tyrosine kinases is negatively regulated by Cbl. The negative regulation of **EphA2** mediated by Cbl is dependent on the activity of **EphA2**, as the kinase inactive mutant of **EphA2** cannot be regulated by Cbl. Moreover, a point mutation (G306E-Cbl) in TKB region of Cbl that has been reported to abolish Cbl binding to RTKs and non-receptor tyrosine kinases impaired the binding to active **EphA2**. The dominant negative mutant 70Z-Cbl, which has a 17-amino acids deletion in the N-boundary of the RING finger domain, defuncted negative regulatory function of Cbl to **EphA2**. These results demonstrate that the TKB domain and RING finger domain of Cbl are essential for this negative regulation.
CT Cell Line
Humans
Phosphorylation
Receptor Protein-Tyrosine Kinases: ME, metabolism
*Receptor Protein-Tyrosine Kinases: PH, physiology
Receptor, EphA2

Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
*Retroviridae Proteins, Oncogenic: PH, physiology
CN 0 (Retroviridae Proteins, Oncogenic); 0 (oncogene protein v-cbl); EC 2.7.1.112 (Receptor Protein-Tyrosine Kinases); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 10 OF 11 MEDLINE on STN
AN **2002279542** MEDLINE
DN PubMed ID: **12019162**
TI Antibody targeting of the **EphA2** tyrosine kinase inhibits malignant cell behavior.
AU Carles-Kinch Kelly; Kilpatrick Katherine E; Stewart Jane C; Kinch Michael S
CS Department of Basic Medical Science, Purdue University Cancer Center, West Lafayette, Indiana 47907, USA.
NC 1U01 CA 91318 (NCI)
SO Cancer research, **(2002 May 15)** 62 (10) 2840-7.
Journal code: 2984705R. ISSN: 0008-5472.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200207
ED Entered STN: 20020522
Last Updated on STN: 20020712
Entered Medline: 20020710
AB **EphA2** is a transmembrane receptor tyrosine kinase that is up-regulated on many aggressive carcinoma cells. Despite its overexpression, the **EphA2** on malignant cells fails to bind its ligand, ephrinA1, which is anchored to the membrane of adjacent cells. Unlike other receptor kinases, **EphA2** demonstrates kinase activity that is independent of ligand binding. However, ligand binding causes **EphA2** to negatively regulate tumor cell growth and migration. Herein, we translate knowledge of **EphA2** into strategies that selectively target malignant cells. Using a novel approach to preserve extracellular epitopes and optimize antibody diversity, we generated monoclonal antibodies that identify epitopes on the extracellular domain of **EphA2**. **EphA2** antibodies were selected for their abilities to inhibit behaviors that are unique to metastatic cells while minimizing damage to nontransformed cells. A subset of **EphA2** monoclonal antibodies were found to inhibit the soft agar colonization by MDA-MB-231 breast tumor cells but did not affect monolayer growth by nontransformed MCF-10A breast epithelial cells. These **EphA2** antibodies also prevented tumor cells from forming tubular networks on reconstituted basement membranes, which is a sensitive indicator of metastatic character. Biochemical analyses showed that biologically active antibodies induced **EphA2** phosphorylation and subsequent degradation. Antisense-based targeting of **EphA2** similarly inhibited soft agar colonization, suggesting that the antibodies repress malignant behavior by down-regulating **EphA2**. These results suggest an opportunity for antibody-based targeting of the many cancers that overexpress **EphA2**. Our studies also emphasize how tumor-specific cellular behaviors can be exploited to identify and screen potential therapeutic targets.
CT Check Tags: Female; Male
*Antibodies, Monoclonal: IM, immunology
Antibodies, Monoclonal: IP, isolation & purification
Antibodies, Monoclonal: PD, pharmacology

Breast Neoplasms: EN, enzymology
*Breast Neoplasms: PA, pathology
Breast Neoplasms: TH, therapy
Cell Division: DE, drug effects
Collagen
Drug Combinations
Epithelial Cells: CY, cytology
Epithelial Cells: DE, drug effects
Epithelial Cells: ME, metabolism
Epitopes: IM, immunology
Growth Inhibitors: IM, immunology
Growth Inhibitors: PD, pharmacology
Humans
Immunization, Passive: MT, methods
Laminin
Prostatic Neoplasms: EN, enzymology
*Prostatic Neoplasms: PA, pathology
Prostatic Neoplasms: TH, therapy
Proteoglycans
*Receptor Protein-Tyrosine Kinases: AI, antagonists & inhibitors
*Receptor Protein-Tyrosine Kinases: IM, immunology
Receptor Protein-Tyrosine Kinases: ME, metabolism
Receptor, EphA2
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Tumor Cells, Cultured

RN 119978-18-6 (matrigel); 9007-34-5 (Collagen)
CN 0 (Antibodies, Monoclonal); 0 (Drug Combinations); 0 (Epitopes); 0 (Growth Inhibitors); 0 (Laminin); 0 (Proteoglycans); EC 2.7.1.112 (Receptor Protein-Tyrosine Kinases); EC 2.7.1.112 (Receptor, **EphA2**)

L52 ANSWER 11 OF 11 MEDLINE on STN
AN **96243041** MEDLINE
DN PubMed ID: **8649815**
TI Germ-line inactivation of the murine **Eck receptor tyrosine kinase** by gene trap retroviral insertion.
AU Chen J; Nachabah A; Scherer C; Ganju P; Reith A; Bronson R; Ruley H E
CS Department of Microbiology and Immunology, Vanderbilt University School of Medicine, Nashville, Tennessee 37232, USA.
NC 1 F32 GM17003-01 (NIGMS)
RO1GM84688 (NIGMS)
SO Oncogene, **(1996 Mar 7)** 12 (5) 979-88.
Journal code: 8711562. ISSN: 0950-9232.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-U28385
EM 199607
ED Entered STN: 19960805
Last Updated on STN: 20000303
Entered Medline: 19960722
AB The present study characterized a mutation in the **Eck receptor tyrosine kinase** gene induced by the U3betageo gene trap retrovirus. The mutation (eck(i)) was identified during an in vitro screen for proviruses that disrupt developmentally regulated genes in cultured ES cells. The germ-line eck(i) fusion gene was expressed in blastocyst and later restricted to the primitive streak, node and to regions of the hindbrain in 6.5-10.5 day embryos. This is identical to the pattern of Eck gene expression as determined by either in

situ hybridization or immunostaining, suggesting that expression of the Eck promoter was not affected by provirus integration. The provirus inserted approximately 8 kb upstream of the 5' end of the published cDNA sequence, and 1.8 kb downstream of an alternatively spliced 5' exon. The eck(i) allele is essentially a null mutation since mutant mice are severely deficient for Eck protein as determined by Western blot analysis and in vitro kinase assays. Nevertheless, mice homozygous for the mutation did not exhibit any discernable phenotype. These results suggest that other members of the Eph family of receptor tyrosine kinases can functionally compensate for loss of Eck.

CT Check Tags: Female; Male
Animals
Base Sequence
Blastocyst
*Exons: GE, genetics
*Genes, Structural: GE, genetics
*Genetic Vectors: GE, genetics
Homozygote
Membrane Proteins: DF, deficiency
*Membrane Proteins: GE, genetics
Mice
Mice, Inbred C57BL
Molecular Sequence Data
*Mutagenesis, Insertional: GE, genetics
Mutagenesis, Insertional: MT, methods
Phenotype
*Proviruses: GE, genetics
*Receptor Protein-Tyrosine Kinases: GE, genetics
Receptor Protein-Tyrosine Kinases: ME, metabolism
Receptor, EphA2
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, P.H.S.
*Restriction Mapping
Rhombencephalon: EM, embryology
Rhombencephalon: ME, metabolism

CN 0 (Genetic Vectors); 0 (Membrane Proteins); EC 2.7.1.112 (Receptor Protein-Tyrosine Kinases); EC 2.7.1.112 (Receptor, **EphA2**)

=> => fil biosis
FILE 'BIOSIS' ENTERED AT 12:35:37 ON 07 JUL 2005

FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 29 June 2005 (20050629/ED)

FILE RELOADED: 19 October 2003.

=> d all tot

L59 ANSWER 1 OF 17 BIOSIS on STN
AN 2004:123940 BIOSIS
DN PREV200400127027
TI Expression, purification, and initial characterization of the cytoplasmic domains of the human receptor tyrosine kinase, **EphA2.**
AU Zabell, Kathryn M. [Reprint Author]; **Kinch, Michael S.**; Knapp, Deborah W.; Stauffacher, Cynthia V. [Reprint Author]

CS Biological Sciences, Purdue University, Lafayette, IN, USA
SO Biophysical Journal, (January 2004) Vol. 86, No. 1, pp. 254a. print.
Meeting Info.: **48th Annual Meeting of the Biophysical Society.**
Baltimore, MD, USA. February 14-18, 2004. Biophysical Society.
ISSN: 0006-3495 (ISSN print).
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 3 Mar 2004
Last Updated on STN: 3 Mar 2004
AB Cellular localization during development is crucial to the correct formation of tissues and organs in all multicellular organisms. The 14 members of the Eph family of receptor tyrosine kinases and their ligands play an important role in establishing and maintaining the correct positionings of cells. **EphA2** is primarily expressed in epithelial cells, where its expression is tightly regulated by phosphorylation and degradation. Loss of regulation decreases phosphorylation, increases protein concentration, and leads to a transformed phenotype resulting in highly aggresive tumors. In order to investigate the activity and regulation of **EphA2**, the cytoplasmic domains (kinase and SAM domains) have been cloned into a bacterial vector for expression in E. coli. Protein expression has been optimized in order to obtain soluble, active protein, and the protein has been purified by affinity chromatography. Characterization of the expressed protein has determined that the kinase domain is active and the protein is purified in a phosphorylated state. Further studies to investigate the activity and oligomeric state of the cytoplasmic domains will be described.
CC **General biology - Symposia, transactions and proceedings 00520**
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Physiology and biochemistry of bacteria 31000
IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques
IT Chemicals & Biochemicals
EphA2: characterization, cytoplasmic domains, expression, purification, receptor tyrosine kinase; protein: concentration
IT Methods & Equipment
affinity chromatography: chromatographic techniques, laboratory techniques; protein characterization: laboratory techniques
ORGN Classifier
Enterobacteriaceae 06702
Super Taxa
Facultatively Anaerobic Gram-Negative Rods; Eubacteria; Bacteria; Microorganisms
Organism Name
Escherichia coli (species)
Taxa Notes
Bacteria, Eubacteria, Microorganisms
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human (common)
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

L59 ANSWER 2 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2004:86106 BIOSIS

DN PREV200400085138
TI CD8+ and CD4+ T cell-mediated immunity against novel **EphA2** -derived epitopes in patients with renal cell carcinoma.
AU Herrem, Christopher J. [Reprint Author]; Tatsumi, Tomohide; Olson, Walter; Finke, James H.; Bukowski, Ronald M.; **Kinch, Michael S.**; Storkus, Walter J.
CS Immunology, Medical School, University of Pittsburgh, 5117 Centre Avenue, Pittsburgh, PA, 15213, USA
SO FASEB Journal, (April 14 2003) Vol. 17, No. 7, pp. C333. print.
Meeting Info.: **90th Anniversary Annual Meeting of the American Association of Immunologists.** Denver, CO, USA. May 06-10, 2003.
American Association of Immunologists.
ISSN: 0892-6638 (ISSN print).
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 11 Feb 2004
Last Updated on STN: 11 Feb 2004
CC **General biology - Symposia, transactions and proceedings 00520**
Cytology - Animal 02506
Cytology - Human 02508
Blood - Blood and lymph studies 15002
Blood - Blood cell studies 15004
Urinary system - Pathology 15506
Neoplasms - Immunology 24003
Neoplasms - Pathology, clinical aspects and systemic effects 24004
Immunology - General and methods 34502
Immunology - Immunopathology, tissue immunology 34508
IT Major Concepts
Clinical Immunology (Human Medicine, Medical Sciences); Oncology (Human Medicine, Medical Sciences)
IT Parts, Structures, & Systems of Organisms
CD4-positive T cells: blood and lymphatics, immune system, EphA-2 derived epitope response, renal cell carcinoma, renal cell carcinoma study; CD8-positive T cells: blood and lymphatics, immune system, EphA-2 derived epitope response, renal cell carcinoma, renal cell carcinoma study
IT Diseases
renal cell carcinoma: neoplastic disease, urologic disease, immunology Carcinoma, Renal Cell (MeSH); Kidney Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA-2 derived epitopes: CD4-positive T cell mediated immunity, CD8-positive T cell mediated immunity, renal cell carcinoma study
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human (common): patient
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

L59 ANSWER 3 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:503134 BIOSIS
DN PREV200300498778
TI Antibody targeting of the **EphA2** receptor tyrosine kinase on breast cancer cells.
AU Hu, Min [Reprint Author]; **Kinch, Michael S.**
CS Purdue University, West Lafayette, IN, USA
SO **Proceedings** of the American Association for Cancer Research

Annual **Meeting**, (July 2003) Vol. 44, pp. 1234. print.
Meeting Info.: **94th Annual Meeting of the American Association for Cancer Research.** Washington, DC, USA. July 11-14, 2003.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 29 Oct 2003
Last Updated on STN: 29 Oct 2003
CC **General biology - Symposia, transactions and proceedings 00520**
Enzymes - General and comparative studies: coenzymes 10802
Reproductive system - Physiology and biochemistry 16504
Reproductive system - Pathology 16506
Neoplasms - Immunology 24003
Neoplasms - Pathology, clinical aspects and systemic effects 24004
Immunology - General and methods 34502
Immunology - Immunopathology, tissue immunology 34508
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Immune System (Chemical Coordination and Homeostasis); Tumor Biology
IT Parts, Structures, & Systems of Organisms
breast: reproductive system
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2 receptor tyrosine kinase: phosphorylation; monoclonal antibody
IT Miscellaneous Descriptors
antibody targeting
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
MCF-10A cell line (cell line): human breast cancer cells
MDA-MB-231 cell line (cell line): human breast cancer cells
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
RN **149433-91-0** (**EphA2** receptor tyrosine kinase)

L59 ANSWER 4 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:502353 BIOSIS
DN PREV200300498371
TI Epitope targeting of **EphA2**: New opportunities for selective killing of tumor cells.
AU **Kinch, Michael S.** [Reprint Author]; Coffman, Karen [Reprint Author]; Carles-Kinch, Kelly [Reprint Author]; Donacki, Nanci E. [Reprint Author]; **Kiener, Peter A.** [Reprint Author]; **Langermann, Solomon** [Reprint Author]; Mancini, Marie [Reprint Author]; Tice, David [Reprint Author]; Woods, Robert [Reprint Author]
CS MedImmune, Inc, Gaithersburg, MD, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (July 2003) Vol. 44, pp. 1118. print.
Meeting Info.: **94th Annual Meeting of the American Association for Cancer Research.** Washington, DC, USA. July 11-14, 2003.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English

ED Entered STN: 29 Oct 2003
Last Updated on STN: 29 Oct 2003
CC **General biology - Symposia, transactions and proceedings 00520**
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Tumor Biology
IT Diseases
tumor: neoplastic disease
Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2: receptor tyrosine kinase, expression
IT Miscellaneous Descriptors
cell-cell contact; ligand binding; tumor cell growth
ORGN Classifier
Animalia 33000
Super Taxa
Animalia
Organism Name
animal (common)
Taxa Notes
Animals

L59 ANSWER 5 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:476294 BIOSIS
DN PREV200300476294
TI Overexpression of **EphA2** in urinary bladder cancer.
AU Abraham, Shaji [Reprint Author]; Mohammed, Sulma I.; Kanagy, Sarah; **Kinch, Micheal**; Knapp, Deborah
CS Purdue University, 625 Harrison St, West Lafayette, IN, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (July 2003) Vol. 44, pp. 1070. print.
Meeting Info.: **94th Annual Meeting of the American Association for Cancer Research.** Washington, DC, USA. July 11-14, 2003.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 15 Oct 2003
Last Updated on STN: 15 Oct 2003
CC **General biology - Symposia, transactions and proceedings 00520**
Biochemistry studies - Nucleic acids, purines and pyrimidines 10062
Biochemistry studies - Proteins, peptides and amino acids 10064
Urinary system - Physiology and biochemistry 15504
Urinary system - Pathology 15506
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Tumor Biology; Urinary System (Chemical Coordination and Homeostasis)
IT Diseases
urinary bladder cancer: neoplastic disease, urologic disease, etiology
Bladder Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2: biomarker, expression; **EphA2** mRNA [**EphA2** messenger RNA]: expression
IT Methods & Equipment
RT-PCR [reverse transcriptase-polymerase chain reaction]: genetic techniques, laboratory techniques; immunohistochemistry: immunologic techniques, laboratory techniques; western blot analysis: genetic techniques, laboratory techniques
ORGN Classifier
Hominidae 86215

Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
RT4 cell line (cell line): human urinary bladder cancer cells
TCC-SUP cell line (cell line): human urinary bladder cancer cells
UMUC-3 cell line (cell line): human urinary bladder cancer cells
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

L59 ANSWER 6 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:441702 BIOSIS
DN PREV200300441702
TI **EphA2** expression is associated with aggressive features in ovarian carcinoma.
AU Thaker, Premal H. [Reprint Author]; **Kinch, Michael**; Sood, Anil K.
CS University of Texas M.D. Anderson Cancer Center, Houston, TX, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (July 2003) Vol. 44, pp. 89. print.
Meeting Info.: **94th Annual Meeting of the American Association for Cancer Research.** Washington, DC, USA. July 11-14, 2003.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 24 Sep 2003
Last Updated on STN: 24 Sep 2003
CC **General biology - Symposia, transactions and proceedings 00520**
Enzymes - General and comparative studies: coenzymes 10802
Digestive system - Pathology 14006
Reproductive system - Physiology and biochemistry 16504
Reproductive system - Pathology 16506
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Reproductive System (Reproduction); Tumor Biology
IT Diseases
ascites: digestive system disease
Ascites (MeSH)
IT Diseases
benign ovarian mass: reproductive system disease/female
IT Diseases
ovarian carcinoma: neoplastic disease, reproductive system disease/female
Ovarian Neoplasms (MeSH); Carcinoma (MeSH)
IT Chemicals & Biochemicals
epithelial cell kinase A2 [**EphA2**]: expression
IT Miscellaneous Descriptors
tumor grade
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human (common): middle age, patient, female
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

L59 ANSWER 7 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:270640 BIOSIS

DN PREV200300270640
TI Ligand (ephrin-A1) binding upregulates **EphA2** gene expression.
AU Pratt, Rebecca Lynn [Reprint Author]; **Kinch, Michael S.**
CS Basic Medical Sciences, Purdue University, 625 Harrison Street, West Lafayette, IN, 47907-2026, USA
rlp@vet.purdue.edu; kinchm@medimmune.com
SO FASEB Journal, (March 2003) Vol. 17, No. 4-5, pp. **Abstract** No. 146.9. http://www.fasebj.org/. e-file.
Meeting Info.: **FASEB Meeting on Experimental Biology: Translating the Genome.** San Diego, CA, USA. April 11-15, 2003. FASEB.
ISSN: 0892-6638 (ISSN print).
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 11 Jun 2003
Last Updated on STN: 11 Jun 2003
AB The **EphA2** receptor tyrosine kinase is overexpressed in many cancers. Increased levels of **EphA2** protein are characteristic of a metastatic phenotype because **EphA2** overexpression positively regulates many different aspects of malignancy, including tumor cell growth, migration and invasion. While the relationship between **EphA2** and these biological outcomes has been the subject of much recent investigation, less is known of the mechanisms that govern **EphA2** gene expression. Our present studies demonstrate that **EphA2** gene expression is positively regulated by its own ability to bind ligand (ephrin-A1). Treatment of malignant (MDA-MB-231) or non-transformed (MCF10A) breast epithelial lines with artificial ligands induced **EphA2** gene expression whereas antagonists of **EphA2**-ligand binding decreased **EphA2** mRNA levels. We also demonstrate that Ephrin-A1-mediated induction of **EphA2** gene expression requires intracellular signaling through the MAP/ERK kinase pathway. These findings provide intriguing evidence that **EphA2** expression and function are intimately linked in both non-transformed and malignant epithelial cells. Ultimately, this information could help to understand the mechanisms that cause the increased expression of this important and influential oncogene in human cancer.
CC **General biology - Symposia, transactions and proceedings 00520**
Genetics - General 03502
Genetics - Human 03508
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics); Tumor Biology
IT Diseases
cancer: neoplastic disease
Neoplasms (MeSH)
IT Diseases
metastasis: neoplastic disease
IT Chemicals & Biochemicals
EphA2: receptor tyrosine kinase; **EphA2** mRNA [**EphA2** messenger RNA]; ephrin-A1
IT Miscellaneous Descriptors
MAP/ERK kinase pathway; tumor cell growth; tumor cell invasion; tumor cell migration
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
MCF10A cell line (cell line): human non-transformed breast epithelial

cells
MDA-MB-231 cell line (cell line): human malignant breast epithelial cells
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates
GEN human **EphA2** gene (Hominidae): expression, oncogene

L59 ANSWER 8 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2003:82261 BIOSIS
DN PREV200300082261
TI **EphA2** overexpression in breast cancer decreases estrogen dependence.
AU Lu, M. [Reprint Author]; Miller, K. D.; Polar, Y.; Nakshatri, H.; **Kinch, M.**
CS Purdue University Cancer Center, West Lafayette, IN, USA
SO Breast Cancer Research and Treatment, (December 2002) Vol. 76, No. Supplement 1, pp. S144. print.
Meeting Info.: **25th Annual San Antonio Breast Cancer Symposium.** San Antonio, TX, USA. December 11-14, 2002.
ISSN: 0167-6806 (ISSN print).
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)
LA English
ED Entered STN: 6 Feb 2003
Last Updated on STN: 6 Feb 2003
CC **General biology - Symposia, transactions and proceedings 00520**
Biochemistry studies - General 10060
Biochemistry studies - Proteins, peptides and amino acids 10064
Reproductive system - Physiology and biochemistry 16504
Reproductive system - Pathology 16506
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Biochemistry and Molecular Biophysics; Reproductive System (Reproduction); Tumor Biology
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2: overexpression, receptor tyrosine kinase; estrogen; estrogen receptor
IT Miscellaneous Descriptors
estrogen dependence
ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
MCF-7 cell line (cell line)
Taxa Notes
Animals, Chordates, Humans, Mammals, Primates, Vertebrates

L59 ANSWER 9 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2002:511226 BIOSIS
DN PREV200200511226
TI Design and synthesis of tyrosine phosphatase inhibitor directed toward new cancer treatments.
AU Zabell, Adam P. R. [Reprint author]; Stauffacher, Cynthia [Reprint author]; **Kinch, Michael** [Reprint author]; Katsuyama, Isamu; Wiest, Olaf; Helquist, Paul

CS Walther Cancer Institute, Purdue University, West Lafayette, IN, 47907, USA
ikatsuya@nd.edu
SO **Abstracts** of Papers American Chemical Society, (2002) Vol. 224, No. 1-2, pp. ORGN 130. print.
Meeting Info.: **224th National Meeting of the American Chemical Society.** Boston, MA, USA. August 18-22, 2002.
CODEN: ACSRAL. ISSN: 0065-7727.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 2 Oct 2002
Last Updated on STN: 2 Oct 2002
CC **General biology - Symposia, transactions and proceedings 00520**
Pathology - Therapy 12512
Pharmacology - General 22002
Neoplasms - Pathology, clinical aspects and systemic effects 24004
Neoplasms - Therapeutic agents and therapy 24008
IT Major Concepts
Pharmacology
IT Diseases
cancer: neoplastic disease
Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2; HCPTP; tyrosine phosphatase inhibitor: antineoplastic-drug, enzyme inhibitor-drug
IT Methods & Equipment
computational design: analytical method
IT Miscellaneous Descriptors
drug development; metastasis; **Meeting Abstract**

L59 ANSWER 10 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2002:409529 BIOSIS
DN PREV200200409529
TI Molecular regulation of melanoma tumor cell vasculogenic mimicry by **EphA2** and VE-cadherin: A novel signaling pathway.
AU Hess, Angela R. [Reprint author]; Seftor, Elisabeth A.; Gruman, Lynn M.; **Kinch, Michael S.**; Seftor, Richard E. B.; Hendrix, Mary J. C.
CS University of Iowa, Iowa City, IA, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (March, 2002) Vol. 43, pp. 843. print.
Meeting Info.: **93rd Annual Meeting of the American Association for Cancer Research.** San Francisco, California, USA. April 06-10, 2002.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 31 Jul 2002
Last Updated on STN: 23 Sep 2002
CC **General biology - Symposia, transactions and proceedings 00520**
Enzymes - General and comparative studies: coenzymes 10802
Cardiovascular system - Physiology and biochemistry 14504
Integumentary system - Physiology and biochemistry 18504
Integumentary system - Pathology 18506
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Cardiovascular System (Transport and Circulation); Enzymology (Biochemistry and Molecular Biophysics); Integumentary System (Chemical Coordination and Homeostasis); Tumor Biology

IT Parts, Structures, & Systems of Organisms
skin: integumentary system; vascular endothelium: circulatory system
IT Diseases
melanoma: integumentary system disease, neoplastic disease
Melanoma (MeSH)
IT Chemicals & Biochemicals
EphA2: expression; FRNK: expression; LY294002: enzyme inhibitor-drug; VE-cadherin [vascular endothelium-cadherin]: expression; focal adhesion kinase [FAK]: phosphorylation; phosphoinositide 3-kinase [PI3K]
IT Miscellaneous Descriptors
tumor cell vasculogenic mimicry regulation; **Meeting Abstract**
ORGN Classifier
Animalia 33000
Super Taxa
Animalia
Organism Name
animal
Taxa Notes
Animals
RN 154447-36-6 (LY294002)
144114-16-9 (focal adhesion kinase)
144114-16-9 (FAK)
115926-52-8 (PHOSPHOINOSITIDE 3-KINASE)

L59 ANSWER 11 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2002:396016 BIOSIS
DN PREV200200396016
TI Stimulation of the oncoprotein, **EphA2**, activates the ERK signaling pathway: Linking the biochemical and biological consequences of ligand binding.
AU Pratt, Rebecca L. [Reprint author]; **Kinch, Michael S.** [Reprint author]
CS Purdue University, West Lafayette, IN, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (March, 2002) Vol. 43, pp. 726. print.
Meeting Info.: **93rd Annual Meeting of the American Association for Cancer Research.** San Francisco, California, USA. April 06-10, 2002.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 24 Jul 2002
Last Updated on STN: 24 Jul 2002
CC **General biology - Symposia, transactions and proceedings 00520**
Enzymes - General and comparative studies: coenzymes 10802
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics)
IT Chemicals & Biochemicals
ERK [extracellular signal-regulated kinase]: phosphorylation, regulation, signaling; Elk-1: transcription factor; Eph2: expression, oncoprotein; GRB2: adaptor protein; SHC: adaptor protein
IT Miscellaneous Descriptors
ligand binding; **Meeting Abstract**
RN 142243-02-5 (EXTRACELLULAR SIGNAL-REGULATED KINASE)

L59 ANSWER 12 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2002:22133 BIOSIS

DN PREV200200022133
TI The mechanism of **EphA2** protein degradation: Implications of increased **EphA2** protein levels in metastatic cancer cells.
AU Walker-Daniels, Jennifer L. [Reprint author]; Van Horn, Deborah A. [Reprint author]; **Kinch, Michael S.** [Reprint author]
CS Purdue University, West Lafayette, IN, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (March, 2001) Vol. 42, pp. 840. print.
Meeting Info.: **92nd Annual Meeting of the American Association for Cancer Research.** New Orleans, LA, USA. March 24-28, 2001.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 26 Dec 2001
Last Updated on STN: 25 Feb 2002
CC **General biology - Symposia, transactions and proceedings 00520**
Neoplasms - Pathology, clinical aspects and systemic effects 24004
IT Major Concepts
Tumor Biology
IT Diseases
metastatic cancer: neoplastic disease
Neoplasm Metastasis (MeSH)
IT Chemicals & Biochemicals
EphA-2 protein: increased metastatic tumor cell level implications, metastatic tumor cell degradation mechanism
IT Miscellaneous Descriptors
Meeting Abstract
ORGN Classifier
Animalia 33000
Super Taxa
Animalia
Organism Name
animal: animal model
Taxa Notes
Animals

L59 ANSWER 13 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2001:244422 BIOSIS
DN PREV200100244422
TI **EphA2** overexpression alters cellular adhesions: Implications for metastasis.
AU Zelinski, Daniel Paul [Reprint author]; **Kinch, Michael** [Reprint author]
CS Purdue University, 1322 Lynn Hall, West Lafayette, IN, 47906, USA
SO FASEB Journal, (March 7, 2001) Vol. 15, No. 4, pp. A234. print.
Meeting Info.: **Annual Meeting of the Federation of American Societies for Experimental Biology on Experimental Biology 2001.** Orlando, Florida, USA. March 31-April 04, 2001.
CODEN: FAJOEC. ISSN: 0892-6638.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 23 May 2001
Last Updated on STN: 19 Feb 2002
AB Many of the most deadly forms of cancer arise when a population of tumor cells gains the ability to survive and grow in a foreign microenvironment. At the cellular level, metastasis requires alterations in cellular adhesions that permit detachment from the primary tumor and invasion

through the underlying basement membrane. However, the causes for these changes in adhesion are poorly understood. Studies in our laboratory have linked these changes with the **EphA2** (**Eck**) **receptor tyrosine kinase**, which is overexpressed in many metastatic cancers. To study the effects of **EphA2** on cancer progression and pathogenesis, we overexpressed **EphA2** in a non-transformed breast epithelial cell line, MCF-10A1. In vitro assays for transformation showed that **EphA2** overexpression is sufficient to promote invasiveness and anchorage independent growth. **EphA2**-overexpressing cells demonstrated tumorigenic and metastatic potential in xenograft studies. During our assessment of these cells, we noted dramatic changes in their cellular morphology that resembled metastatic cells. Objective measurements of cellular adhesions revealed that the **EphA2**-overexpressing cells had decreased cell-cell adhesions and increased cell-ECM adhesions. Our analyses have demonstrated a change in ECM substrate preferences that implicates a change in integrin expression. We are currently investigating the mechanisms by which **EphA2** overexpression changes the adhesive behavior of epithelial cells, which is important because this information will provide critical insight into the fundamental causes of metastasis.

CC Biochemistry studies - General 10060
General biology - Symposia, transactions and proceedings 00520
Cytology - General 02502
Cytology - Animal 02506
Neoplasms - Pathology, clinical aspects and systemic effects 24004

IT Major Concepts
Biochemistry and Molecular Biophysics; Cell Biology; Tumor Biology

IT Parts, Structures, & Systems of Organisms
epithelial cells, adhesive behavior; extracellular matrix

IT Chemicals & Biochemicals
EphA2 protein: expression

IT Miscellaneous Descriptors
cellular adhesion: alteration; metastasis; **Meeting Abstract**

L59 ANSWER 14 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

AN 2000:238522 BIOSIS

DN PREV200000238522

TI **EphA2** overexpression in breast cancer: Regulation by estrogen and c-Myc.

AU Zelinski, Daniel P. [Reprint author]; Dodge-Zantek, Nicole [Reprint author]; Stewart, Jane C. [Reprint author]; Peters, Mette A. [Reprint author]; Taparowsky, Elizabeth J. [Reprint author]; **Kinch, Michael S.** [Reprint author]

CS Purdue Univ, West Lafayette, IN, USA

SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (March, 2000) No. 41, pp. 358. print.
Meeting Info.: **91st Annual Meeting of the American Association for Cancer Research.** San Francisco, California, USA. April 01-05, 2000.
ISSN: 0197-016X.

DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)

LA English

ED Entered STN: 7 Jun 2000
Last Updated on STN: 5 Jan 2002

CC Neoplasms - General 24002
Biophysics - Membrane phenomena 10508
Reproductive system - Pathology 16506
Endocrine - Gonads and placenta 17006

General biology - Symposia, transactions and proceedings 00520
Biochemistry studies - Sterols and steroids 10067
IT Major Concepts
Reproductive System (Reproduction); Tumor Biology
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2 receptor; c-Myc; estrogen
IT Miscellaneous Descriptors
cancer progression; **Meeting Abstract**

L59 ANSWER 15 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2000:82525 BIOSIS
DN PREV200000082525
TI Overexpression of **EphA2** in metastatic cancer cells: A role for Ras signaling.
AU Walker-Daniels, Jennifer L. [Reprint author]; Zantek, Nicole D. [Reprint author]; Azimi, Minou [Reprint author]; **Kinch, Michael S.** [Reprint author]
CS Purdue University, 1246 Lynn Hall, West Lafayette, IN, 47907-1246, USA
SO Molecular Biology of the Cell, (Nov., 1999) Vol. 10, No. SUPPL., pp. 427a. print.
Meeting Info.: **39th Annual Meeting of the American Society for Cell Biology.** Washington, D.C., USA. December 11-15, 1999. The American Society for Cell Biology.
CODEN: MBCEEV. ISSN: 1059-1524.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 1 Mar 2000
Last Updated on STN: 3 Jan 2002
CC Neoplasms - General 24002
Cytology - General 02502
Biochemistry studies - General 10060
Metabolism - General metabolism and metabolic pathways 13002
Reproductive system - General and methods 16501
Urinary system - General and methods 15501
General biology - Symposia, transactions and proceedings 00520
IT Major Concepts
Biochemistry and Molecular Biophysics; Tumor Biology
IT Parts, Structures, & Systems of Organisms
metastatic cancer cells
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Diseases
epithelial cancers: neoplastic disease
IT Diseases
prostate cancer: neoplastic disease, reproductive system disease/male, urologic disease
Prostatic Neoplasms (MeSH)
IT Chemicals & Biochemicals
EphA2: overexpression; Ras
IT Miscellaneous Descriptors
Meeting Abstract

L59 ANSWER 16 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

AN 1999:187448 BIOSIS
DN PREV199900187448
TI Regulation of the **EphA2** receptor tyrosine kinase by estrogen and myc.
AU Zantek, N. D.; Zelinski, D.; Peters, M. A.; Taparowsky, E. J.; **Kinch, M. S.**
CS Purdue Univ., West Lafayette, IN 47907, USA
SO **Proceedings** of the American Association for Cancer Research Annual **Meeting**, (March, 1999) Vol. 40, pp. 687. print.
Meeting Info.: **90th Annual Meeting of the American Association for Cancer Research.** Philadelphia, Pennsylvania, USA. April 10-14, 1999.
American Association for Cancer Research.
ISSN: 0197-016X.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 5 May 1999
Last Updated on STN: 5 May 1999
CC Enzymes - General and comparative studies: coenzymes 10802
Biochemistry studies - General 10060
Reproductive system - General and methods 16501
Neoplasms - General 24002
General biology - Symposia, transactions and proceedings 00520
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Tumor Biology
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Chemicals & Biochemicals
c-myc protein: transcription factor; estrogen; **EphA2** receptor tyrosine kinase: regulation
IT Miscellaneous Descriptors
Meeting Abstract
RN **149433-91-0** (**EphA2** receptor tyrosine kinase)
80449-02-1 (TYROSINE KINASE)

L59 ANSWER 17 OF 17 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 1999:26830 BIOSIS
DN PREV199900026830
TI Epithelial cell kinase (ECK/**EPHA2**) regulation in breast cancer.
AU Zantek, Nicole Dodge [Reprint author]; Fedor-Chaiken, Mary; Brackenbury, Robert; **Kinch, Michael S.**
CS Dep. Basic Med. Sci., Purdue Univ., West Lafayette, IN 47907, USA
SO Molecular Biology of the Cell, (Nov., 1998) Vol. 9, No. SUPPL., pp. 134A. print.
Meeting Info.: **38th Annual Meeting of the American Society for Cell Biology.** San Francisco, California, USA. December 12-16, 1998.
American Society for Cell Biology.
CODEN: MBCEEV. ISSN: 1059-1524.
DT **Conference; (Meeting)**
Conference; Abstract; (Meeting Abstract)
LA English
ED Entered STN: 20 Jan 1999
Last Updated on STN: 20 Jan 1999
CC Neoplasms - General 24002
Cytology - General 02502
Biochemistry studies - General 10060
Enzymes - General and comparative studies: coenzymes 10802
Reproductive system - General and methods 16501

General biology - Symposia, transactions and proceedings 00520
IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Tumor Biology
IT Diseases
breast cancer: neoplastic disease, reproductive system disease/female
Breast Neoplasms (MeSH)
IT Chemicals & Biochemicals
E-cadherin; Epithelial Cell Kinase [ECK/**EphA2**]: Eph family
tyrosine kinase; breast cancer progression marker
IT Miscellaneous Descriptors
Meeting Abstract
RN 9031-44-1 (KINASE)
80449-02-1 (TYROSINE KINASE)

=> d his

(FILE 'HOME' ENTERED AT 11:26:38 ON 07 JUL 2005)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 11:26:44 ON 07 JUL 2005
E EPH
L1 4 S E3()A2
L2 154 S E29,E32
L3 156 S L1,L2
E KIENER P/AU
L4 99 S E3,E4,E7,E8
E KINCH M/AU
L5 66 S E3,E5,E7,E10,E11
E LANGERMAN S/AU
L6 37 S E4,E5,E11-E14
E MEDIMMUN/PA,CS
L7 218 S MEDIMMUNE?/PA,CS
L8 1 S US20050049176/PN OR (US2004-823259# OR WO2004-US11481 OR US20
L9 1 S L3 AND L8
L10 106 S L3 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L11 59 S EPHRIN TYPE A RECEPTOR 2
L12 27 S L11 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L13 117 S L10,L12

FILE 'REGISTRY' ENTERED AT 11:33:54 ON 07 JUL 2005
E EPH/CN
E EPHA2
L14 27 S E3
L15 0 S EPH A2

FILE 'HCAPLUS' ENTERED AT 11:36:36 ON 07 JUL 2005
L16 130 S L14
L17 25 S ECK()(KINASE OR RECEPTOR KINASE OR RECEPTOR PROTEIN KINASE OR
L18 1 S EPITHELIAL CELL RECEPTOR PROTEIN TYROSINE KINASE
L19 117 S L16-L18 AND (PD<=20030411 OR PRD<=20030411 OR AD<=20030411)
L20 174 S L13,L19
L21 29 S L4-L7 AND L20
L22 29 S L21 AND (?KINASE? OR TYROSINE OR PROTEINKINASE OR PROTEIN KIN
L23 28 S L22 AND RECEPTOR
L24 29 S L22,L23
L25 29 S L9,L24
L26 14 S L4-L7 AND L3,L11,L16-L18 NOT L25
L27 193 S L3,L11,L16-L18 NOT L25,L26
L28 145 S L27 AND L10,L12,L19

```
L29            9 S L28 AND ANTAGON?
L30           61 S L28 AND (INHIBIT? OR BLOCK? OR PREVENT?)
L31           62 S L29,L30
                 SEL DN AN 3 6 14-16 20 30 34 39 47 48 50 52 53 60
L32           15 S L31 AND E1-E45
L33           44 S L25,L32
L34           83 S L28 NOT L31,L25,L26
                 SEL DN AN 4 5 8 26 27 32 34 38 41 68 83
L35           11 S L34 AND E46-E78
L36           55 S L33,L35 AND L1-L13,L16-L35
L37           55 S L36 AND (?TYROSIN? OR ?KINASE? OR RECEPTOR OR PROTEIN)
L38           10 S L37 AND ECK
L39           51 S L37 AND (EPH OR EPHRIN? OR EPH## OR EPH A#)
L40           55 S L37-L39
                 SEL HIT RN

     FILE 'REGISTRY' ENTERED AT 12:19:56 ON 07 JUL 2005
L41            2 S E79-E80
L42            2 S L41 AND L14

     FILE 'REGISTRY' ENTERED AT 12:20:37 ON 07 JUL 2005

     FILE 'HCAPLUS' ENTERED AT 12:20:44 ON 07 JUL 2005

     FILE 'MEDLINE' ENTERED AT 12:22:57 ON 07 JUL 2005
L43            0 S L14
L44          116 S L17 OR L18 OR L1 OR L2 OR L11
                 E EPH
L45            3 S E3()A2
L46          111 S E18
L47           86 S L44-L46 AND PY<=2003
L48            3 S L47 NOT AB/FA
                 SEL DN AN 1
L49            1 S E1-E2 AND L48
L50           83 S L47 NOT L48
                 SEL DN AN L50 2 13 16 17 19 20 22 32 34 69
L51           10 S L50 AND E3-E22
L52           11 S L49,L51

     FILE 'MEDLINE' ENTERED AT 12:31:34 ON 07 JUL 2005

     FILE 'BIOSIS' ENTERED AT 12:31:45 ON 07 JUL 2005
                 E KIENERP/AU
                 E KIENER/AU
L53          108 S E23-E26
                 E KINCH M/AU
L54           68 S E3,E5-E9
                 E LANGERMA S/AU
L55           45 S E18,E22-E24
L56           11 S L14
L57          133 S L44
L58           36 S L53-L55 AND L56,L57
L59           17 S L58 AND (00520/CC OR (CONFERENCE? OR CONGRESS? OR POSTER? OR

     FILE 'BIOSIS' ENTERED AT 12:35:37 ON 07 JUL 2005

=>
```